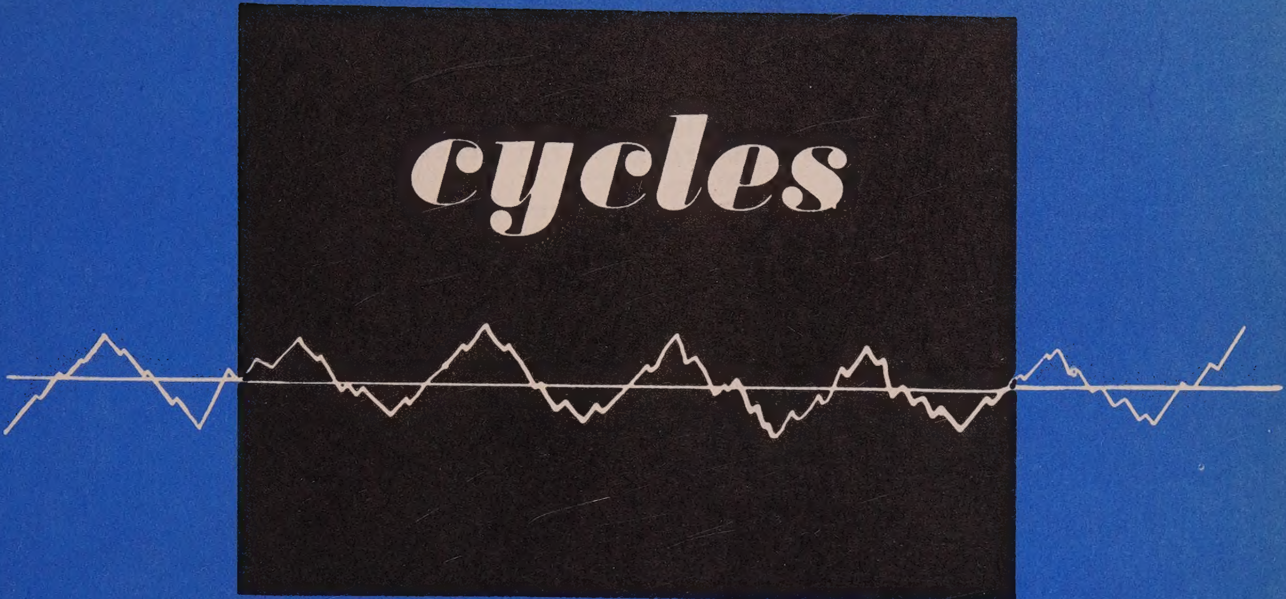
cycles



May 1955

FOUNDATION FOR THE STUDY OF CYCLES
New York, New York

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cycles

The official Bulletin of the Foundation for the Study of Cycles

VOLUME VI NUMBER 5 MAY 1955

The Director's Letter

Dear Member:

You may have noticed that the quantity of our research has increased during the past two or three months. I hope the quality has improved too. The improvement has been made possible by the increased financial support which has come from our members.

As I have told you, the members who pay but $10 pay only for the typing, printing, and distribution of our reports and for our general operating expenses. *All* of the research upon which the reports are based is paid for by those members who contribute *more* than the $10 minimum.

During the first three months of this year some 89 people contributed a total of about $1,770 in excess of the basic minimum. We have already put this money to work. With the extra money, our reports are much more significant.

The Equatorial Cycle

The mail bag is often quite amusing. For example, last week we got a card with a grim bit of humor which struck a responsive chord. It read, "Study hard, old boy. An equatorial cycle is 25,862 years or thereabouts. Hope you make it." I sometimes feel that 25,862 years is very close to the length of time it will take me to get to the bottom of the subject.

All joking aside, it will probably take several lifetimes and the labor of many workers before we solve our problems.

The Stock Market

One of our members has sent me a letter from a stock salesman and asked me for my comments.

The letter from the stock salesman reads as follows:

"Thank you for your letter and also for the enclosed material regarding the foundation sponsored by Mr. Edward Dewey. I am returning this latter material to you.

"One of my good friends has subscribed to this service for many years and finds it quite interesting but tells me that the prognostications have been pretty much in error. Back in 1944 Mr. Dewey took a long-term observation and said that the market was in a steady uptrend which would last until 1954 but he forgot all about this forecast back in 1952 and at that time said that the top has been reached and that stocks should be liquidated. More recently, however, he must have been reviewing his old files and found that old-time forecast and has brought it to light with quite some glee but continues to state that the turn should be down from here.

"Anytime that you and Mrs. ... decide to purchase the next 125 shares of ... will be agreeable ...."

My Reply

Dear Mr. --------

Thank you for letting me see the letter

from your stock salesman friend.

You asked for the facts. They are as follows:

1. I do not sponsor the Foundation. The Foundation sponsors me.

2. The Foundation does not issue a "service".

The Foundation is a not-for-profit scientific and educational institution. It is engaged solely in basic scientific research. It is dedicated to human welfare.

This distinction may seem a quibble but it is not. A "service" exists to serve its subscribers. With us, it is just the other way around. Our members, as members, exist to serve us so that we in turn can serve humanity.

The Foundation investigates cycles in all aspects of natural and social phenomena. Among dozens of other things, we study cycles in the stock market. We do this because the stock market seems to be an excellent measure of mass psychology. Cycles can often be studied in the stock market to better advantage than in tree rings, earthquakes, rock strata, etc.

The Foundation does not attempt to forecast the stock market. However the Foundation reports do contain facts which can and should be taken into account by those who do wish to forecast the market.

An Example

Here is an example of what I mean:

Back in 1944 I isolated 10 cycles (all longer than 4 1/2 years in length) in the Standard and Poor's Combined Index. I combined these 10 cycles and projected them into the future to indicate what would happen if the cycles were significant and continued. This projection, as determined at that time, together with trend, as determined at that time, called for the average annual values of the Standard and Poor's Combined Index to advance steadily from 1943 to 1946, to decline steadily from 1946 to 1949, to advance steadily from 1949 to 1952, to flatten from 1952 to 1953, to resume the advance from 1953 to 1954 and then to decline for several years.

This synthesis of stock market cycles was first published in 1944. I republished it in June of 1951 and published it again in June of 1954. This synthesis, made in 1944, has not been changed or revised since the day it was made.

If you had followed this synthesis from the time it was made through 1954, your gains would have been 185.3 times your losses.

3. I had not forgotten about this forecast in 1952. I referred to it repeatedly.

4. In 1952 I did not say that the top had been reached. In fact, I have *never* said that the top has been reached. Even now I do not say that the top has been reached. I do not know.

It may clarify my position in regard to the market to repeat at this point some remarks I did make in 1952.

They are as follows:

"I learned with some amazement from one of our members that I am supposed to be bullish. I am not bullish. I am not bearish. Neither am I a mugwump, once defined as a bird sitting on a fence with his mug on one side and his wump on the other.

"I do not know whether the stock market is going to go up or go down. I might have an opinion, but if I had, it would not be appropriate for me to express it. The Foundation is concerned with fact, not opinion.

Even Cyclomaniacs Have Limits

"Not even the most ardent cyclomaniac claims that all stock market fluctuations are the result of cyclic forces. Therefore, even if we had a perfect and complete knowledge of cycles—instead of the most elementary—the most we could do would be to predict that part of the market behavior due to the cyclic forces. In the present state of our knowledge we cannot do even that much with any assurance.

"Therefore, at the present time we must limit ourselves to reporting to you in regard to facts which you should take into account in connection with your own forecasting,—facts which you are not likely to learn of in any other way—facts which you cannot ignore if you are going even to approximate probable future behavior.

"What I have said about the stock market goes for business also.

"The last time I saw him before his death, General Charles Gates Dawes, who was Chairman of the Board of the City National Bank and Trust Company of Chicago as well as being a member of the Committee of the Foundation for the Study of Cycles, asked me to inaugurate a service for banks and businessmen that would tell them when to expect the next depression. He suggested that $250 a year would be a fair price for the service. He said that he would subscribe, that his bank would subscribe, and that he personally would write letters to all of the banks in the midwest urging them to subscribe also.

General Dawes Makes $1,000,000

"General Dawes knew something about cycles first hand. He once told me that he and his brother had made over a million dollars in the stock market solely as a result of his knowledge of cycles. He showed me brokerage statements which showed over this amount in clear profit. You can see why he had confidence in cycles as a useful tool for the investor and the businessman.

"I was naturally much pleased and flattered by General Dawes' offer. As you can imagine, it was quite tempting. However I turned it down for the very simple reason that I did not feel that I yet knew enough about cycles to make it honest for me to accept the money... [I feel the same way today (1955)].

What is Fact?

"I have said the Foundation is concerned with fact. Just what do I mean? When I say that railroad stock prices have evidenced a rhythmic cycle which has averaged 19.4 years in length from the beginning of such prices in 1831 to the present time, that is a **fact.** The cycle has repeated itself clearly for over six consecutive times. But you must not read into this statement any firm forecast that this behavior will continue. You are going to have to look at the evidence and come to your own conclusion as to whether the cycle has repeated itself **enough** times with **enough** regularity and with **enough** dominance so that you feel the behavior is significant.

"I wish our mathematics were developed to the point that we could say, "a cycle of such regularity and such dominance could not exist in a series of such length as a result of random forces more than once in a hundred times" or once in 372 times, or once in ten times, as the case might be. I wish, I say, that we could say this, but we cannot yet do so. When we can do so, that will be a fact also, and I will pass it on to you.

Natural Science Comparisons Needed

"In the absence of such mathematical guides, or even if we had them, my own desire would be to check each economic wave length against long series of natural science figures such as tree ring widths, or the thickness of successive annual lake bottom deposits, to see if we have such a cycle in natural phenomena, too.

"I have the feeling that many of our members grudge any attention I give to cycles outside the field of economics. They do not realize that it is in these other fields that we can make the most substantial progress most quickly. It is not only in Alice in Wonderland that we have to turn our backs to the place we wish to go and walk away from it if we wish ever to get there."

5. I did not say, in 1952, that stocks should be liquidated.

I did tell you that I felt that some cycle work of Veryl L. Dunbar, which was published in October of 1952 "has a definite bearing on the probabilities of stock market behavior for next year (1953)." Dunbar's work said that, in the Axe-Houghton Index, if the pattern of 119 years continued to prevail, the lowest month of 1953 would be lower than the highest month of 1952. This of course turned out to be true. The decline in the Axe-Houghton Index from the highest month of 1952 to the lowest month of 1953 amounted to 11.3%, as I showed you in our report for April 1954.

I wish I could say that I had *never* said that stocks should be liquidated. This however would not be true. I was foolish enough in my letter for March 1955, to volunteer the observation that if I owned any stocks I, personally, would sell them and, from here on out, let the other fellow make the profit.

I call myself foolish, not because of the advice, which is sound, but because it was wrong of me to step out of my rôle of fact finder into the rôle of advice giver.

6. I do *not* say the turn should be down from here. How can I ever get it across to people that cyclic information is only *partial* information? The determined *cycles* are only part of the picture. I don't know anything about the other part of it. I'm not trying to hedge. I'm merely trying to be honest.

This Month's Report

This month's report gives you three examples of the 16 2/3-year cycle, two examples of the 17.2-year cycles, and another 18.2-year cycle. It also gives you some conjectures about the way in which some cycles lengths may be related to each other.

The 16 2/3-Year Cycle

The 16 2/3-year cycle in wrought iron prices in England, 1277--1918, is one of the best examples of a cycle I know of. Thirty-eight times! What a cycle!

The fact that we find evidence of cycles of the same length in tree ring widths in Arizona and in Java support the idea that we are dealing here with fundamental *natural* forces. The ideal 16 2/3-year Java tree rings cycle turns almost exactly at the same time as the ideal 16 2/3-year wrought iron cycle. However the ideal 16 2/3-year Arizona tree ring cycle does not.

Phenomena Evidencing 16 2/3-Year Cycles	Approximate Time of Current Ideal High of Cycle
Wrought Iron Prices	1958.16
Java Tree Rings	1958.3
Arizona Tree Rings	1962.4

The 17.2-Year Cycle

It is interesting, and to me it seems significant, that both of the 17.2-year cycles isolated turn ideally at about the same calendar time. You can see this from the following table.

Phenomena Evidencing 17.2-Year Cycles	Approximate Time of Current Ideal High of Cycle
Stock Prices	1955.4
Population	1955.9 (low)

I would like to investigate the 17.2-year cycle in tree rings and in other natural phenomena. I shall do so as soon as time permits.

The 600-Year Cycle

As for the 600-year cycle, I don't know if I really have something, or if I am just having fun with figures. Time will tell!

Cordially yours,

Edward R. Dewey

Director

Research

A FUNDAMENTAL 600-YEAR CYCLE?

IT seems to be a basic characteristic of the human mind to strive for unity. No matter what the subject matter, we human beings like to organize and unify things—in our minds, anyway.

Nowhere is this more true than in cycle analysis. Cyclomaniacs are always looking for one master wave length to which all other wave lengths are related. I don't know what good it would do us if we ever found it (and I don't believe we ever will find it), but it seems to satisfy something within to keep on trying.

Another human characteristic is to feel that cycle lengths "ought" to be simple unit fractions of this master length. That is, that they "should" be 1/2, 1/3, 1/4, 1/5, etc.

I strive against it, but from time to time I am guilty of each of the two failings named above.

Last night, for example, as I was writing the stock market story which appears elsewhere in this issue, I did a little day dreaming. "How long," I said, "would a master or fundamental length have to be so that unit fractions of it would be the lengths I have discussed in this and in the April issue?"

Well, if we start with the 16 2/3-year cycle and the 17 2/3-year cycle we find that 18 cycles 16 2/3 years long equal 300 years; 17 cycles 17 2/3 years long equal 300.3 years. Pretty neat, eh?

Now let's try the 16 2/3-year cycle and the 18.2—year cycle. Twelve 16 2/3-year cycles equal 200 years; eleven 18.2-year cycles equal 200.2 years. Pretty neat again!

But of course the 18.2-year cycle won't fit into 300 years. However, it will fit almost exactly into 600 years and so will 16 2/3 and 17 2/3. Our computations now look like this:

16 2/3 x 36 = 600.0
17 2/3 x 34 = 600.7
18.2 x 33 = 600.6

How about the stock market and population cycle discussed elsewhere in this issue?

17.2 x 35 = 602.0

Pretty good. Let's go on.

For the study let's refer to the indexes by cycle lengths in *Cycles*, Vols. I to V, to see what else we can dig up that will fit into the pattern. (By the way, I might mention in passing that we have reprinted all five of these indexes in a special release. This release is 16 pages long; 8 1/2 x 11 inches in size. If you want a copy send 50¢ to our publication office, 680 West End Avenue, New York 25, New York.)

Here is what we find:

The earth's axis wobbles in a cycle 18.6 years long.[1]

18.6 x 32 = 595.2

A cycle about 19.4 years long has been discovered in railroad stock prices and in industrial stock prices.[2, 3, 4]

19.4 x 31 = 601.4

A cycle about 20 years long has been discovered in railroad stock prices, and in industrial stock prices.[3, 4]

20 x 30 = 600.0

A cycle about 20.8 years long has been discovered in sunspots with alternate cycles reversed. (I made this discovery back in 1949, but I have never had time to write it up for you.)

20.8 x 29 = 603.2

A cycle about 22 years long has been observed in postal receipts in Milwaukee.[5]

A cycle about 22.2-years long has been discovered in sunspots with alternate cycles reversed.[6]

A 22.2-year cycle has been discovered in wholesale prices.[7]

A cycle about 22.14 years long has been discovered in international conflict.[8]

A 22.2-year cycle has been discovered in advertising efficiency.[9]

A cycle about 22.2-years long has been discovered in the abundance of Lynx in

Canada.[10, 11]

A cycle about 22.2 years long has been discovered in female ailments.[12]

22.14 x 27 = 597.8
22.16 x 27 = 598.5
22.2 x 27 = 599.4

A cycle about 23 years long has been discovered in lake and river levels.[13]

A cycle about 23 years long has been discovered in rock deposit widths.[13]

A cycle about 23 years long has been discovered in tree rings.[13]

A cycle about 23 years long has been discovered in weather in the United States.[13]

A cycle about 23.3 years long has been discovered in stock prices.[14]

23.0 x 26 = 598
23.3 x 26 = 605.8

A cycle about 24 years long has been discovered in European wheat prices.[15]

24 x 25 = 600.0

A cycle about 26.1 years long has been discovered in railroad stock prices.[3]

26.1 x 23 = 600.3

A cycle about 30 years long has been discovered in railroad stock prices.[16, 17]

30 x 20 = 600.0

It takes Saturn and Pluto 33.43 years to effect one heliocentric conjunction—that is, it is 33.43 years between the times when these two planets are in line with each other and the sun.[18]

33.43 x 18 = 601.7

A cycle about 35.2 years long has been discovered in the number of Chinese earthquakes.[19, 20]

A cycle about 35.2 years long has been discovered in the abundance of Lynx in Canada.[10, 11]

35.2 x 17 = 598.4

A cycle about 37.5 years long has been discovered in common stock prices.[16]

A cycle about 37.5 years long has been discovered in the variation of the length of the sunspot cycle.[21]

37.5 x 16 = 600.0

A cycle about 40.0 years long has been discovered in railroad stock prices.[3]

40.0 x 15 = 600.0

A cycle about 46 years long has been discovered in droughts in the northwest.[22]

A cycle about 46 years long has been discovered in the levels of the Great Lakes.[22]

A cycle about 46 years long has been discovered in tree ring widths.[22]

46.0 x 13 = 598.0

A cycle about 50 years long has been discovered in manufacturing production.[23, 24, 25]

A cycle about 50 years long has been discovered in wholesale prices.[7]

50 x 12 = 600.0

A cycle about 54.5 years long has been discovered in railroad stock prices.[3]

54.5 x 11 = 599.5

A cycle about 66.5 years long has been discovered in cotton prices.[26]

66.5 x 9 = 598.5

A cycle about 100.0 years long has been discovered in railroad stock prices.[3]

100 x 6 = 600.0

A cycle about 150 years long has been discovered in pig iron prices.[27]

150 x 4 = 600.0

A cycle about 300 years long has been discovered in the variation of the length of the sunspot cycle.[28]

300 x 2 = 600.0

It is interesting and curious that so many lengths are so close to simple unit fractions of 600 years. Of course in many instances this correspondence is probably pure coincidence, but I wonder if all of them are?

E.R.D.

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1. Cycles, April 1953, page 112.
2. Cycles, September 1951, pages 254--260.
3. Cycles, April 1952, pages 123--129.
4. Cycles, May 1952, pages 166--179.
5. Cycles, June 1950, page 10.
6. Cycles, June 1950, pages 8--11.
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8. Cycles, February 1951, pages 43--46 and pages 53--54.
9. Cycles, June 1951, pages 223--224.
10. Cycles, September 1953, page 231.
11. Journal of Cycle Research, Vol. 2, No. 2, Spring 1953, pages 28--51.
12. Cycles, April 1954, page 140.
13. Cycles, December 1950, pages 28--32.
14. Cycles, April 1952, page 129.
15. Cycles, December 1953, page 340.
16. Cycles, October 1951, page 283--284.
17. Cycles, April 1952, page 129.
18. Cycles, April 1951, page 137.
19. Cycles, January 1952, pages 14--15.
20. Cycles, June 1952, pages 212--219.
21. Cycles, October 1951. pages 279--282.
22. Cycles, December 1950, pages 28--32.
23. Cycles, January 1954, pages 5--7.
24. Cycles, February 1954, pages 45--53.
25. Cycles, April 1954, pages 126--131.
26. Cycles, November 1950, pages 17--26.
27. Cycles, June 1952, page 209.
28. Cycles, October 1951, pages 281--282.

THE 16 2/3-YEAR CYCLE
IN WROUGHT IRON PRICES IN ENGLAND, 1277–1918

WROUGHT iron prices in England, 1277--1918, clearly evidence a cycle about 16 2/3 years in length. The figures cover a long enough period of time so that the cycle has an opportunity to repeat 38 times during the period under review (642 years).

The prices used were read from a photographic enlargement of a chart by Cecil Elmes. This chart was published a number of years ago by the New York engineering firm of Sanderson and Porter. The actual prices, as read from Mr. Elmes' chart, are plotted in Fig. 1.

The 16 2/3-year cycle is plain enough so that you can see it by inspection of the raw figures. You can see it even more clearly, however, if you smooth out the minor wiggles a little, and express the smoothed year-by-year prices as percentages above and below their trend. Trend is plotted in Fig. 1 by means of a broken line.

These computations have been made. The results are shown in Fig. 2. Fig. 2 also diagrams the timing of the 16 2/3-year cycle.

(For the technician: The trend used was a 19-year moving average of the logs of data. The smoothing was effected by means of a 3-year moving average of the deviations, in logs.)

The ideal timing of the current crest of the 16 2/3-year cycle in wrought iron prices in England is 1958.16, i.e. end of February, 1958.

The shape seems to be zigzag as usual.

The average amplitude (strength) runs from 111.0% of trend at ideal time of crest down to 90.9% of trend at ideal time of trough. This is an average overall move of 20.1% of trend every 8 1/3 years.

(For the technician: To get the best possible estimate of length we averaged the first 27 cycles of a 16.6-year periodic table of the deviations of the logs of the data from their 19 year moving average (1297--1734). We then averaged the 10th to the 36th cycles of the same table (1436--1884). The results of this averaging process are shown in Fig. 3 below. The fact that the second group of 27 cycles slips about half a year to the right of the first group of 27 cycles suggests a length slightly longer than 16.6. Actually the length suggested is 1/18 of a year or .055 (1/2 year in 9 cycles). This puts the length at 16.655, but this is cutting it a little fine. I think we would do best to settle for 16 2/3 years.

The tops and bottoms of the curve are rounded because the figures used had been smoothed by means of a 3-year moving average.)

Except for a few abnormalities scattered here and there over the 642 year period, the conformation to the perfectly regular pattern is quite astonishing.

There is no question in my mind but that this cycle is significant. *E.R.D.*

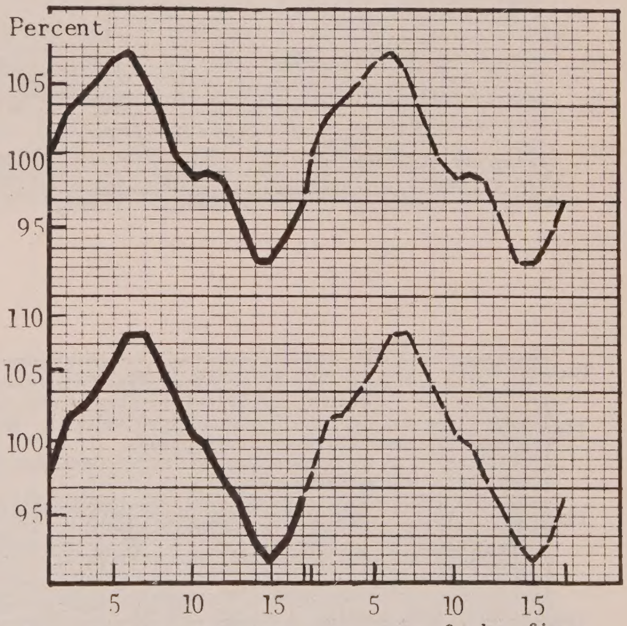


Fig. 3. Upper Curve: Average of the first twenty-seven 16.6-year cycles (1297--1734).

Lower Curve: Average of the 10th to the 36th cycles, inclusive (1436--1884).

The slippage of half a position to the right in 9 cycles suggests a length slightly longer than 16.6--perhaps 16 2/3 years. Ratio Scale.

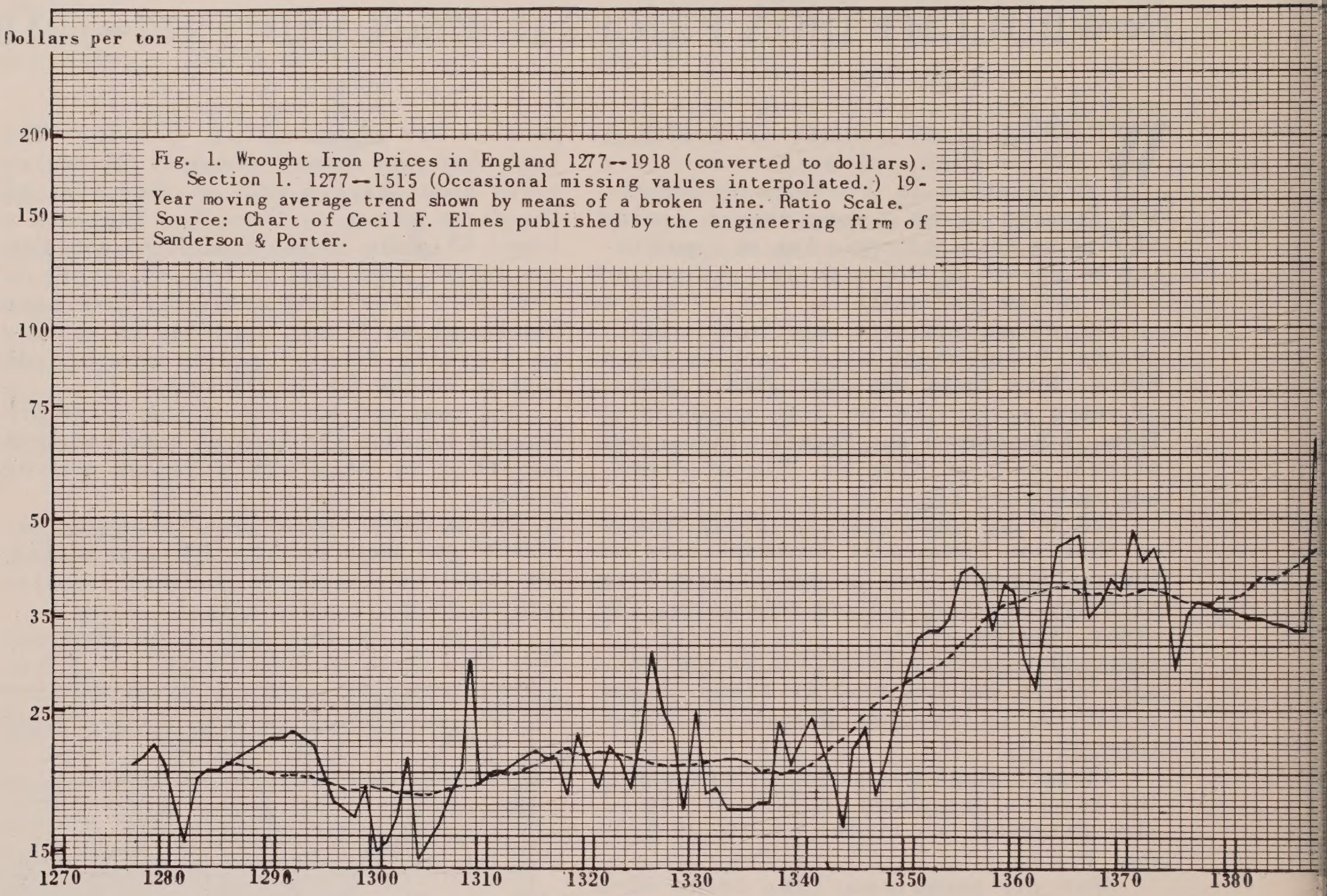


Fig. 1. Wrought Iron Prices in England 1277--1918 (converted to dollars).

Section 1. 1277--1515 (Occasional missing values interpolated.) 19-Year moving average trend shown by means of a broken line. Ratio Scale.

Source: Chart of Cecil F. Elmes published by the engineering firm of Sanderson & Porter.

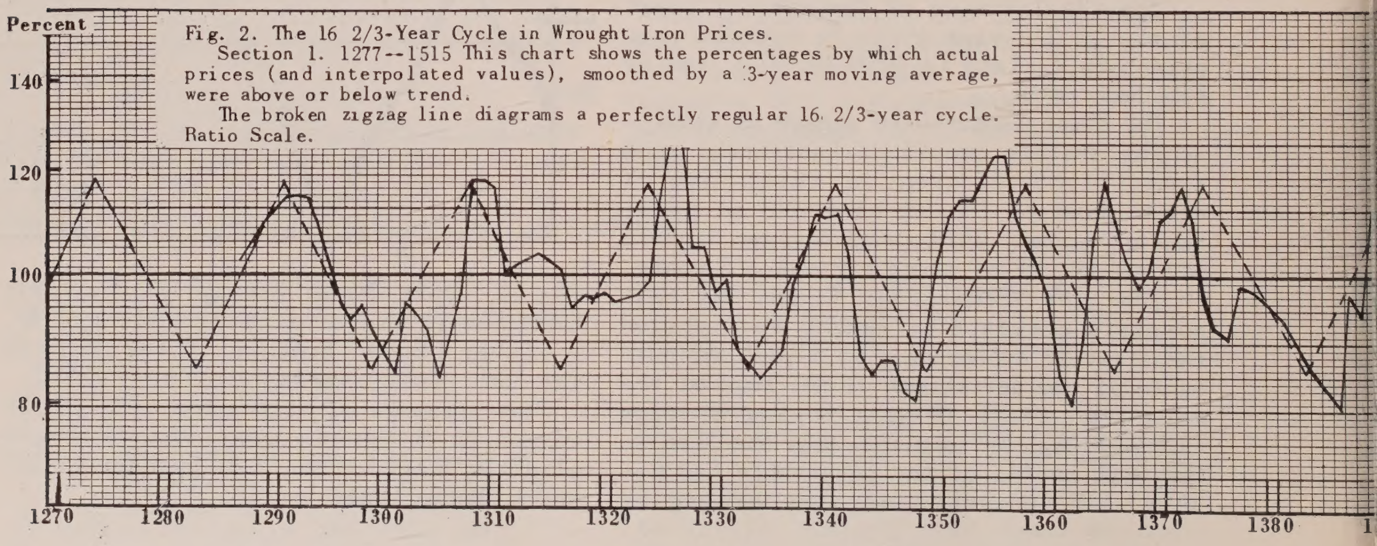
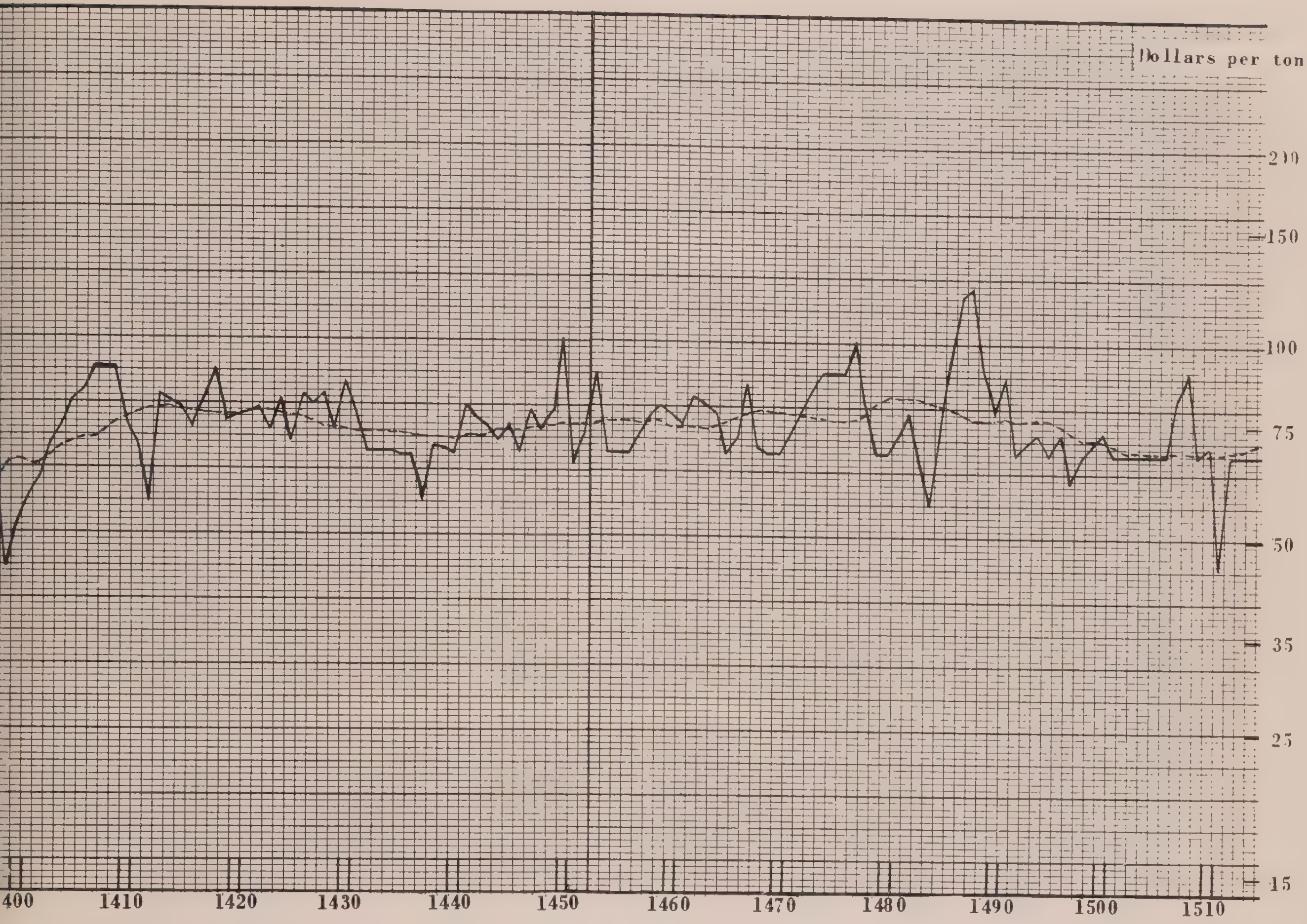


Fig. 2. The 16 2/3-Year Cycle in Wrought Iron Prices.

Section 1. 1277--1515 This chart shows the percentages by which actual prices (and interpolated values), smoothed by a 3-year moving average, were above or below trend.

The broken zigzag line diagrams a perfectly regular 16 2/3-year cycle. Ratio Scale.


Dollars per ton
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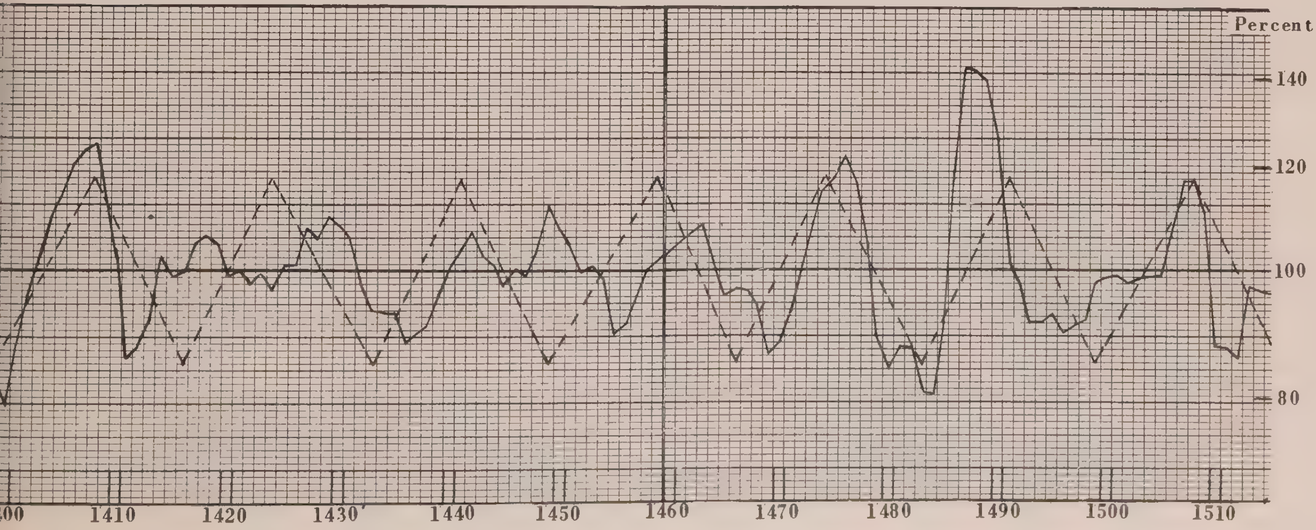
Percent
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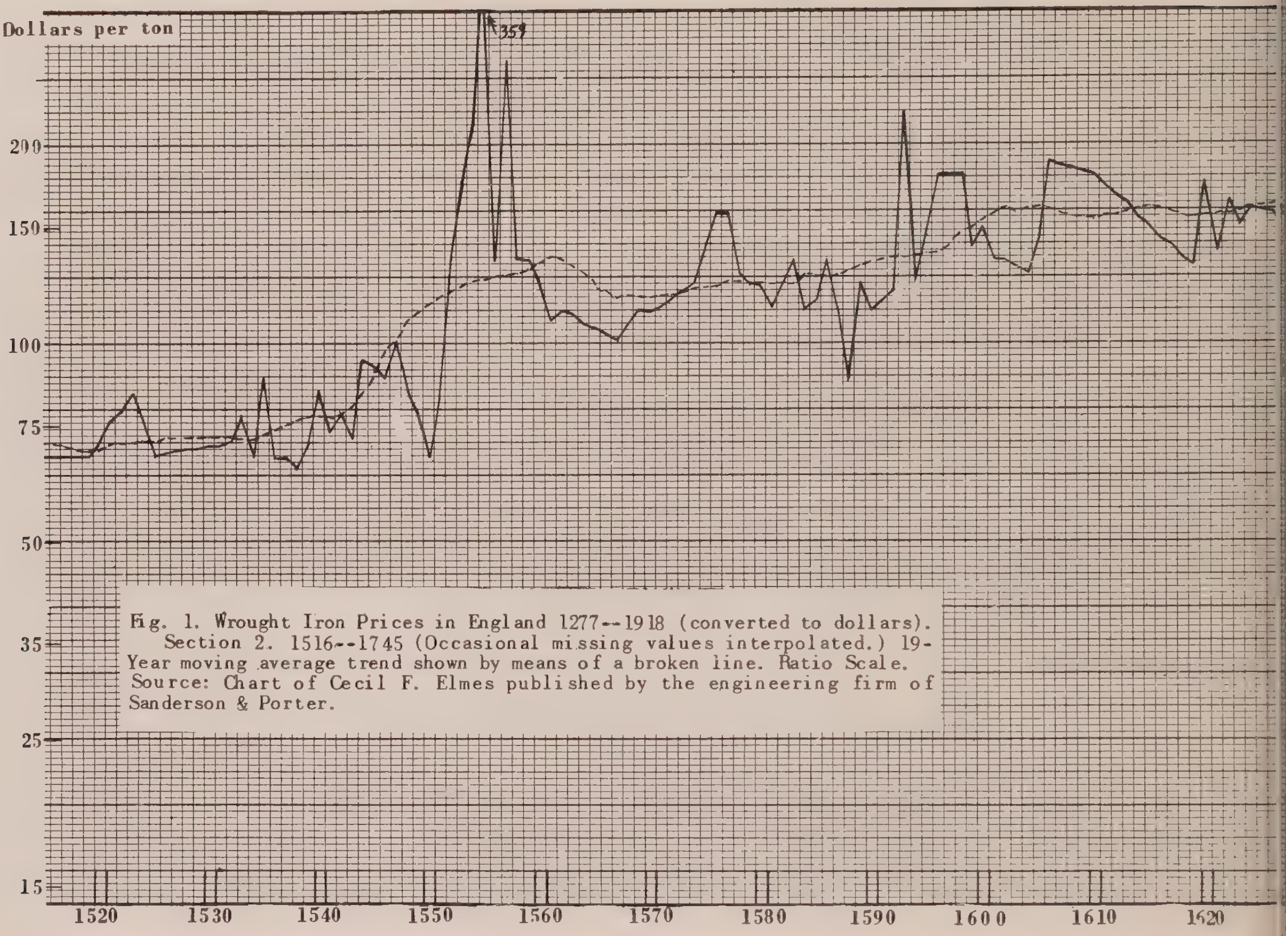
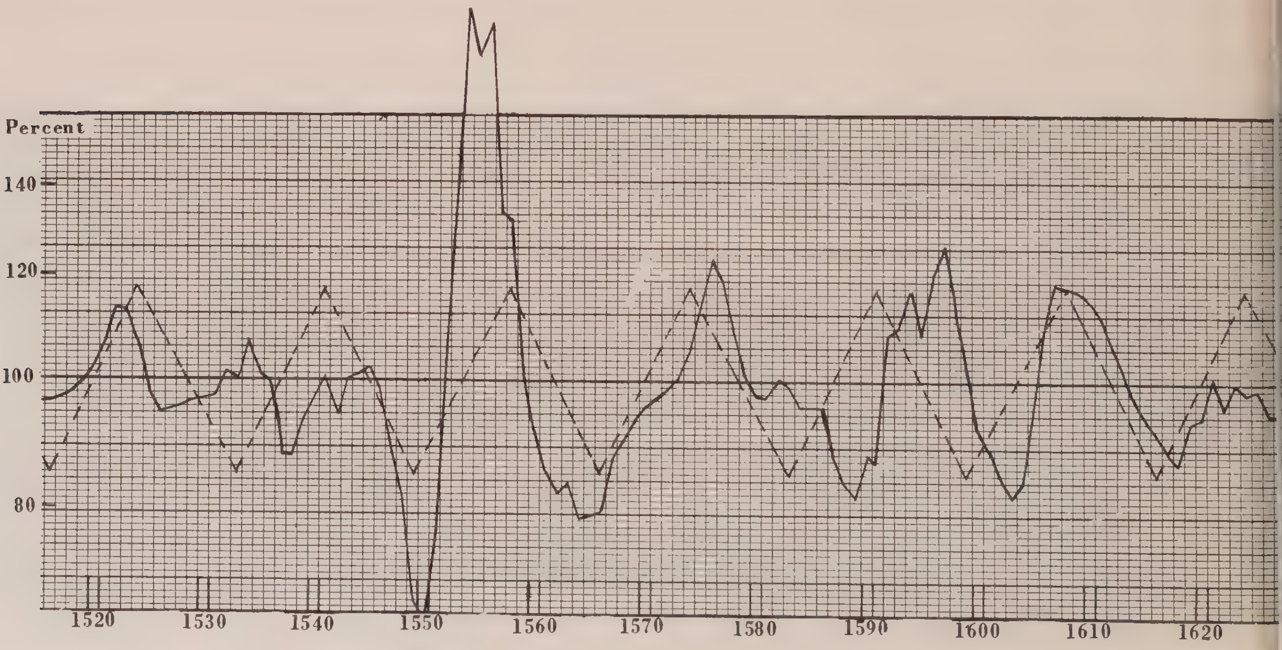
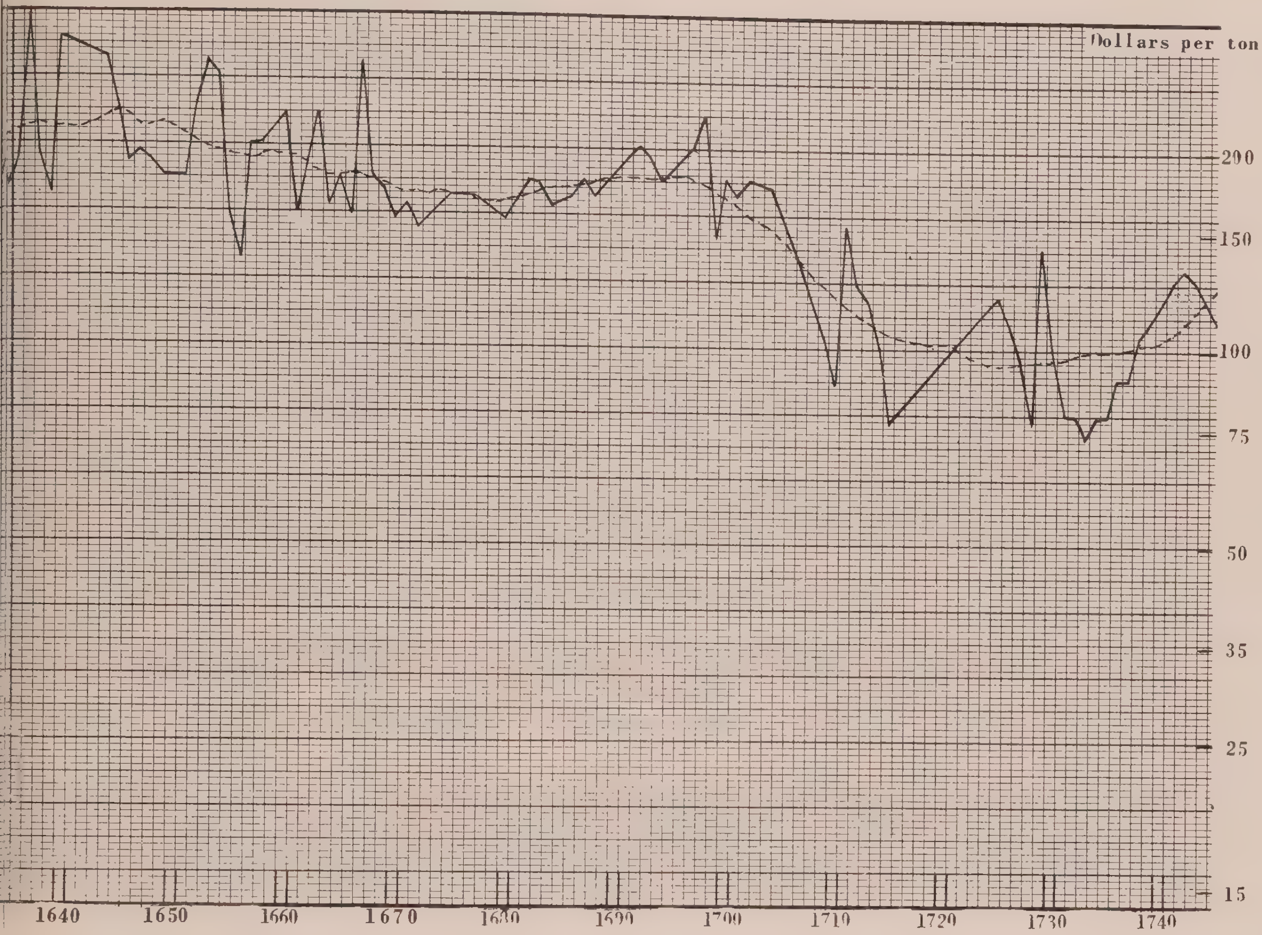


Fig. 1. Wrought Iron Prices in England 1277--1918 (converted to dollars). Section 2. 1516--1745 (Occasional missing values interpolated.) 19-Year moving average trend shown by means of a broken line. Ratio Scale. Source: Chart of Cecil F. Elmes published by the engineering firm of Sanderson & Porter.





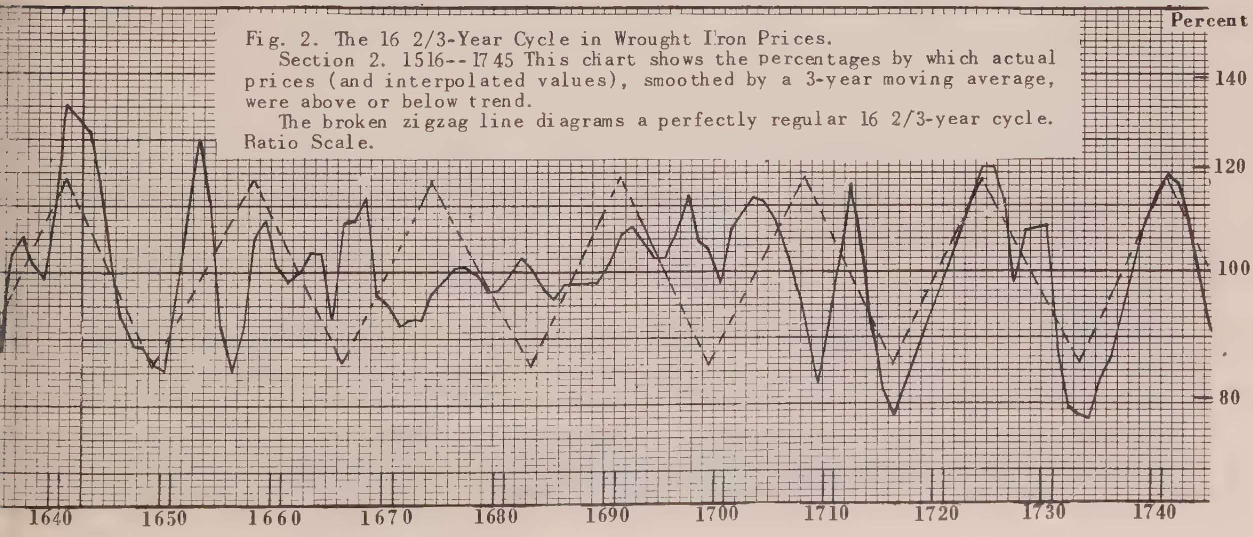


Fig. 2. The 16 2/3-Year Cycle in Wrought Iron Prices.

Section 2. 1516--1745 This chart shows the percentages by which actual prices (and interpolated values), smoothed by a 3-year moving average, were above or below trend.

The broken zigzag line diagrams a perfectly regular 16 2/3-year cycle. Ratio Scale.

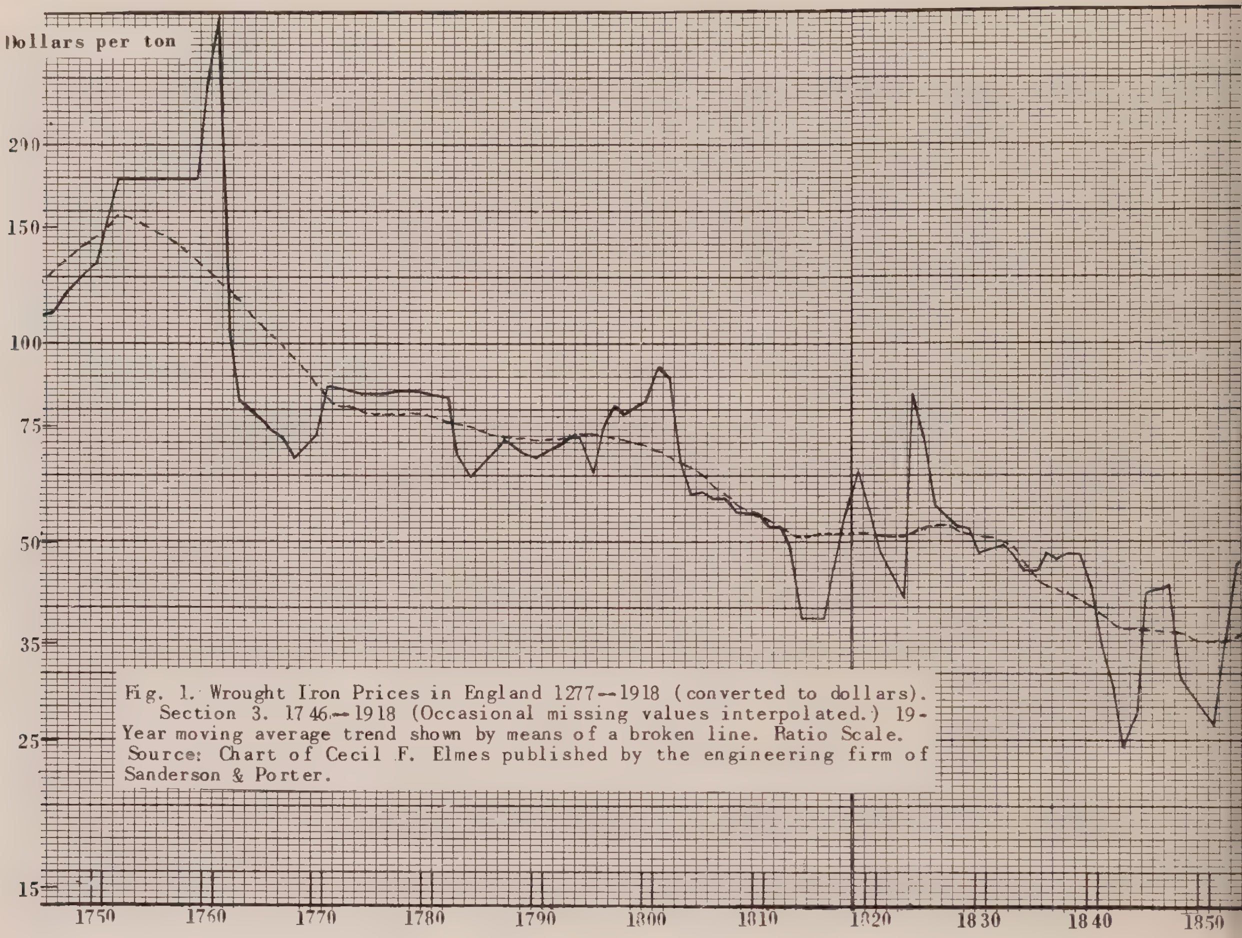
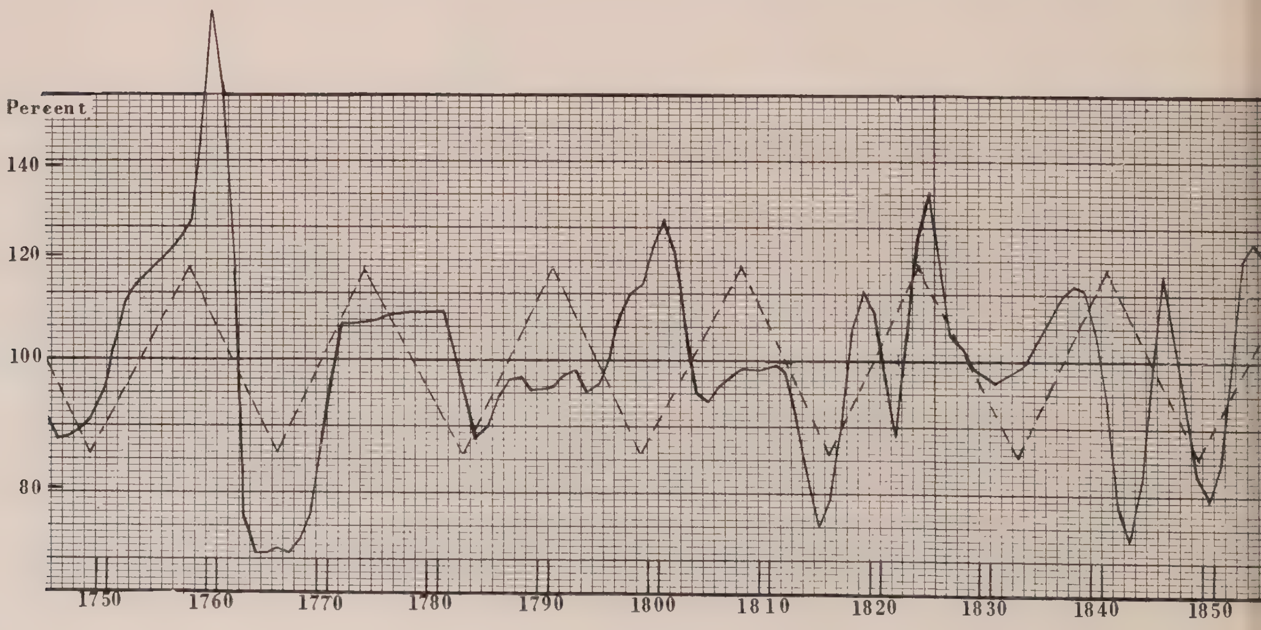
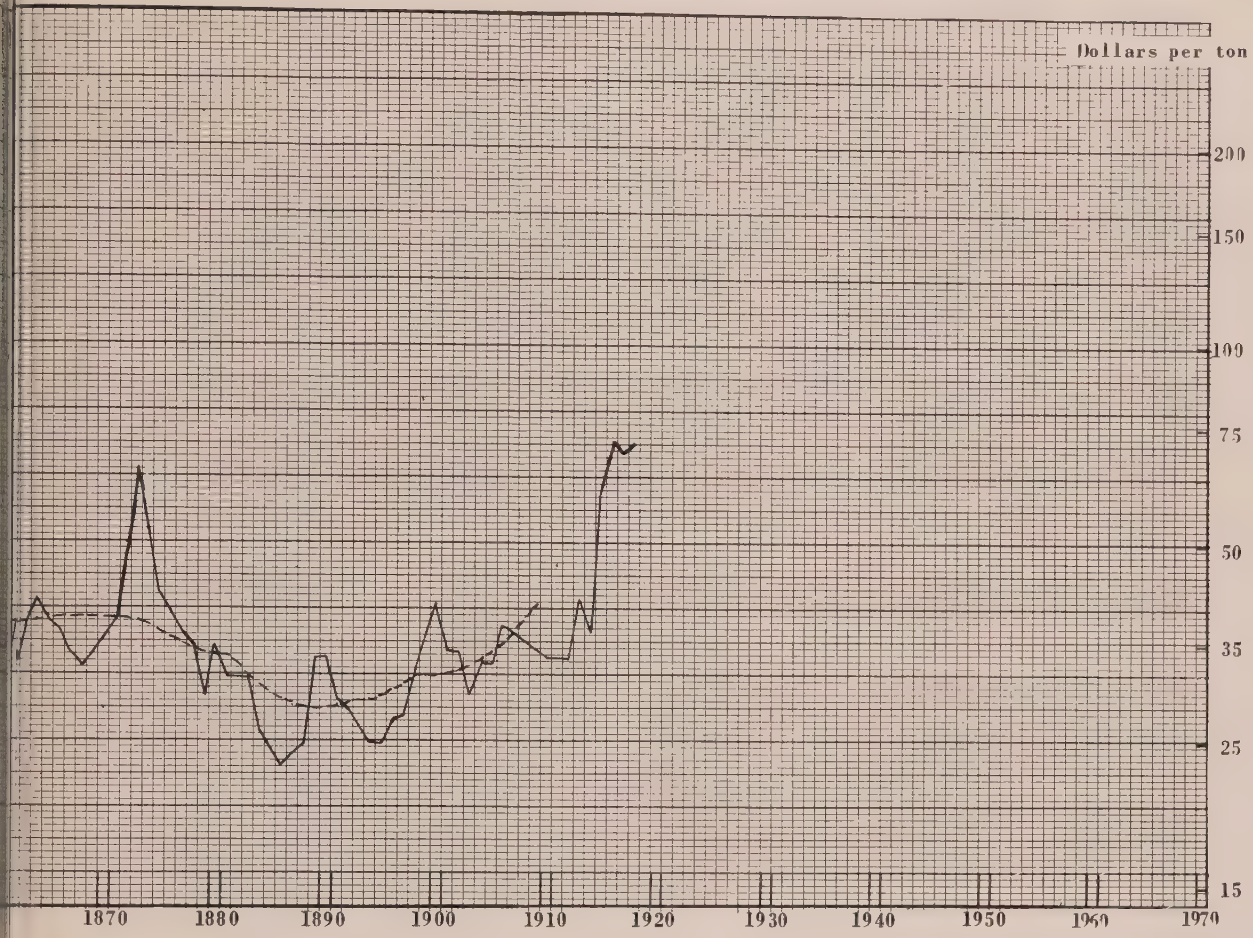


Fig. 1. Wrought Iron Prices in England 1277--1918 (converted to dollars). Section 3. 1746--1918 (Occasional missing values interpolated.) 19-Year moving average trend shown by means of a broken line. Ratio Scale. Source: Chart of Cecil F. Elmes published by the engineering firm of Sanderson & Porter.





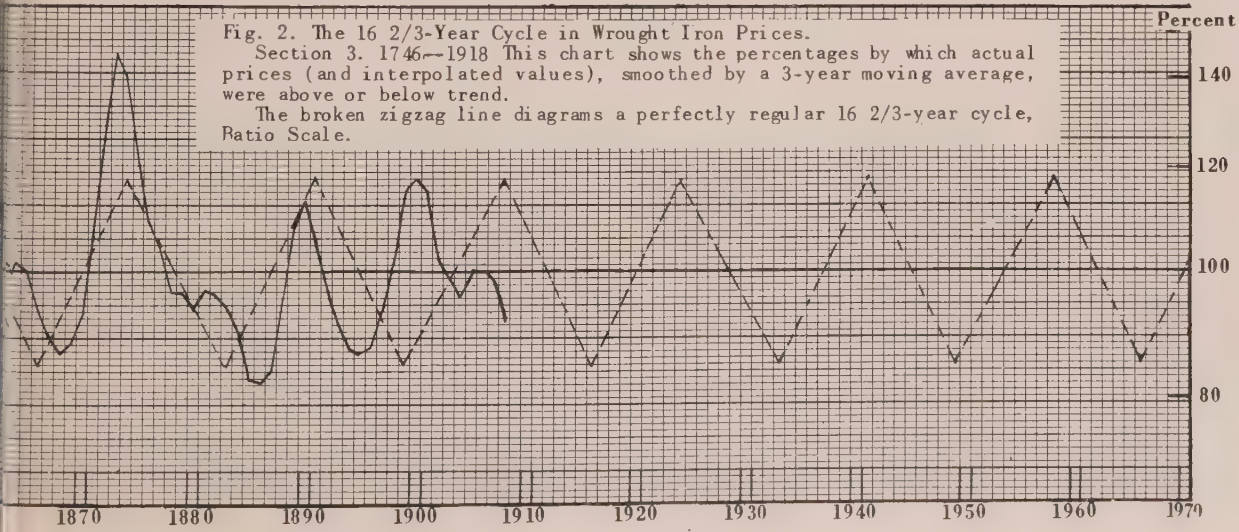


Fig. 2. The 16 2/3-Year Cycle in Wrought Iron Prices.

Section 3. 1746--1918 This chart shows the percentages by which actual prices (and interpolated values), smoothed by a 3-year moving average, were above or below trend.

The broken zigzag line diagrams a perfectly regular 16 2/3-year cycle, Ratio Scale.

THE 16 2/3-YEAR CYCLE IN ARIZONA TREE RINGS,

A.D. 900—1939

I THINK there is a 16 2/3-year cycle in Arizona tree ring widths, but I do not know for sure. I think there is a cycle of this length in these figures because (a) such a cycle is present *on the average* in each half of the figures from A. D. 900 to 1939, (b) because the cycle so found is symmetrical, and (c) because it seems to me to be too strong to be easily the result of chance.

On the other hand you cannot see the 16 2/3-year cycle in Arizona tree ring widths as a *rhythm*. That is, you cannot see one 16 2/3-year wave after another, as in wrought iron prices in England. This is so because, in this series of figures, other cycles and randoms are more important. And when you cannot actually *see* the waves, one after another, you are flying by instrument, as it were. You cannot feel quite so safe. Even so, I believe it is present.

If it is present, what are its characteristics?

As nearly as I can tell, the length of this cycle in tree rings is exactly 16 2/3 years. The strength is 104.0% of trend at time of crest, 96.2% of trend at time of trough. The ideal time for narrow rings would currently be 1954.1; for wide rings 1962.4.

The data used are actual measurements of tree ring widths, in millimeters, A. D. 900—1939. They are part of the data published by the Foundation for the Study of Cycles in Basic Data Bulletin No. 2, issued as a supplement to our report for May, 1951.

I want to make the meaning of this study clear to you. Let me start at the beginning.

Trees grow by adding layers of wood. The growth of the winter is hard and compact. The growth of the summer is more porous. It is thus possible, when you cut a tree down or take a core, to measure the growth of any one year.

When you have a year of good growing conditions, the layers for that year are thick, when growing conditions are poor the layers are thin. Growing conditions depend upon temperature, rainfall, and possibly upon other factors as well.

There is a tendency for several thick layers to be followed by several thin layers. When this alternation is regular we have rhythmic cycles in the tree ring widths.

If tree ring widths show cycles, it suggests some environmental force of the same wave length. It is these forces we are trying to run down. *E.R.D.*

THE 16 2/3-YEAR CYCLE IN JAVA TREE RINGS,

1514—1929

USING the same figures we used in the April report in our study of the 18.2-year cycle in Java tree rings, 1514—1929, I can find no evidence whatever of a 17.2-year cycle.

We do, however, find evidence of a 16 2/3-year cycle, present on the average in this series of figures.

As nearly as I can measure it, if there is a 16 2/3-year cycle here, it has a strength of about 3 1/2% above and below trend, and crests, ideally, 1958.3. This is almost exactly the same time as the 16 2/3-year cycle crests in wrought iron prices in England.

E.R.D.

THE 17.2-YEAR CYCLE

IN STOCKS PRICES, 1831–1954

IN last month's report I told you that, in spite of the widespread prevalence of 17.7- and 18.2-year cycles, I failed to be convinced that either of these cycles exist as an important factor in stock prices at the present time. I doubt if they ever did.

Are there cycles of this general order of magnitude other than the 17.7 and the 18.2? The answer is "yes." Moreover, as I pointed out last month, a cycle between 16 2/3 years and 17 3/4 years is clearly present in the stock market figures. If it is not 17.7 years long, what then is its length?

Stock market prices cover so short a period of time that they offer but seven opportunities for a 16 3/4--17 3/4-year cycle to repeat. Therefore you cannot be sure of the exact length of the cycle. However, as nearly as I can measure it, the length of this cycle in stock prices is between 17.2 and 17.3 years long.

Stock prices, 1831—1954, are shown in Fig. 1 overleaf. Fig. 1 also shows trend, and, in the lower curve, the amounts by which prices have been over or under trend. A broken zigzag line has been fitted to this lower curve to diagram a 17.2-year cycle.

If the length is 17.2 years long, as I suspect, the current crest is due, ideally, at 1955.4. The next trough is due, ideally, 1964.0. If the length is 17.3 years, the crest would be due, ideally, about six months later.

The strength of the 17.2-year cycle is considerable. On the average the 17.2-year cycle accounts for the strength of 17½% above trend at time of crest, weakness of 13% below trend at time of trough. This amounts to over 30% of trend up or down, on the average, every 8.6 years.

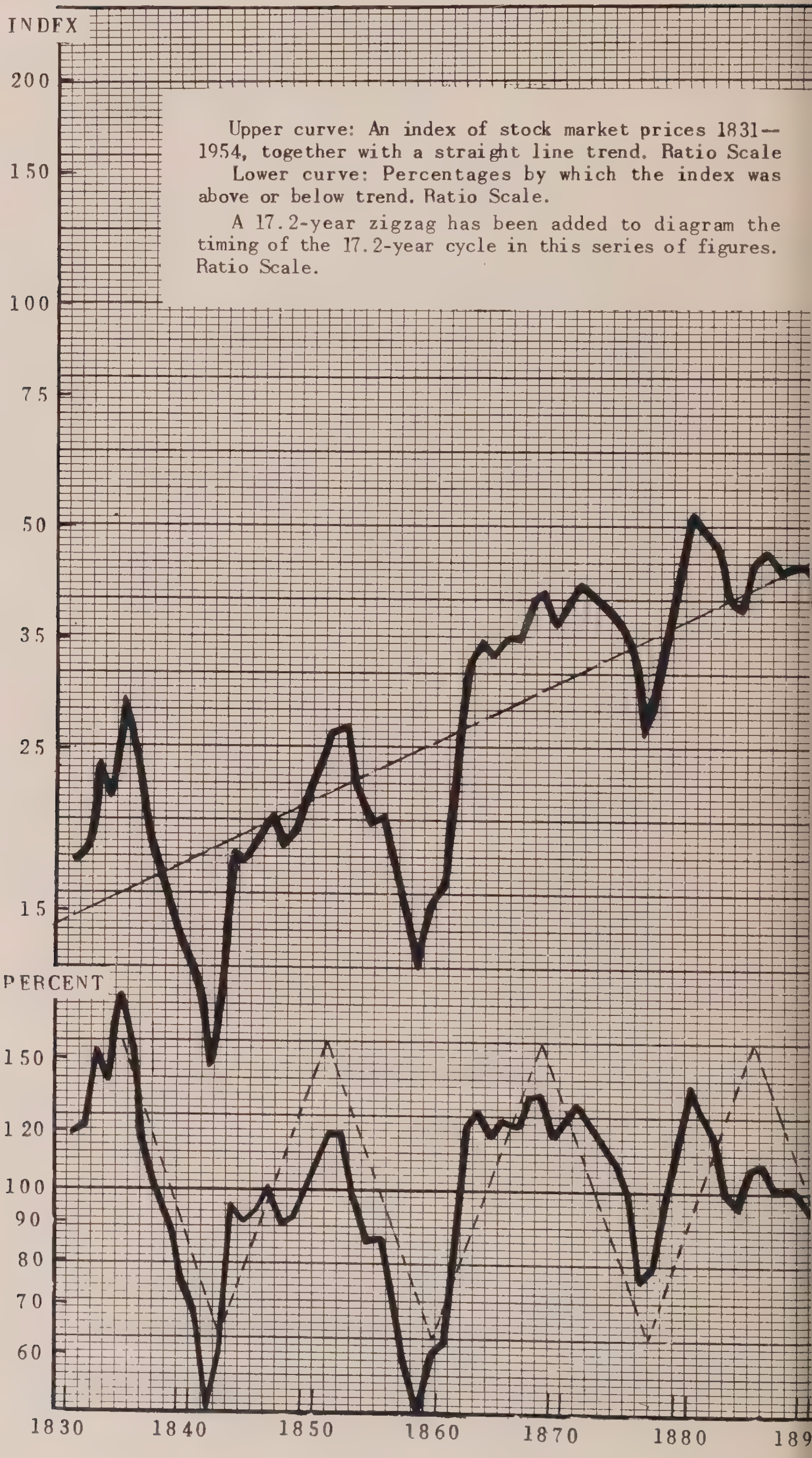
This cycle has been more regular than appears at first glance. Actual behavior differed so much from the ideal in 1921 (when the turn came 9.1 years late) and 1929 (when the turn came 8.5 years late) that the excellence with which many of the other 17.2-year tops and bottoms called the turns tends to be overlooked. The record is as follows:

	Ideal	Actual (as nearly as can be told from annual figures)	Late or Early
High	1835.0	1835.5	0.5 years late
Low	1843.6	1842.5	1.1 years early
High	1852.2	1853.0	.8 years late
Low	1860.8	1859.5	1.3 years early
High	1869.4	1869.5	0.1 years late
Low	1878.0	1877.5	.5 years early
High	1886.6	1881.5	5.1 years early
Low	1895.2	1896.5	1.3 years late
High	1903.8	1906.5	2.7 years late
Low	1912.4	1921.5	9.1 years late
High	1921.0	1929.5	8.5 years late
Low	1929.6	1932.5	2.9 years late
High	1938.2	1936.5	1.7 years early
Low	1946.8	1942.5	4.3 years early
High	1955.4	?	?

Of course no one in his right mind would attempt to trade on one cycle only. Tables of timing, and buy and sell tables, when shown, are merely to give you one measure of whether or not the cycle is significant. In this case, in spite of the distortion and the short record, I believe that it may be.

A tendency for stock prices to repeat at about 17 1/3-year intervals was first called to my attention by Mr. W. E. D. Stokes, Jr. of Lenox, Massachusetts. (See pages 204-5 of our report for June 1952.)

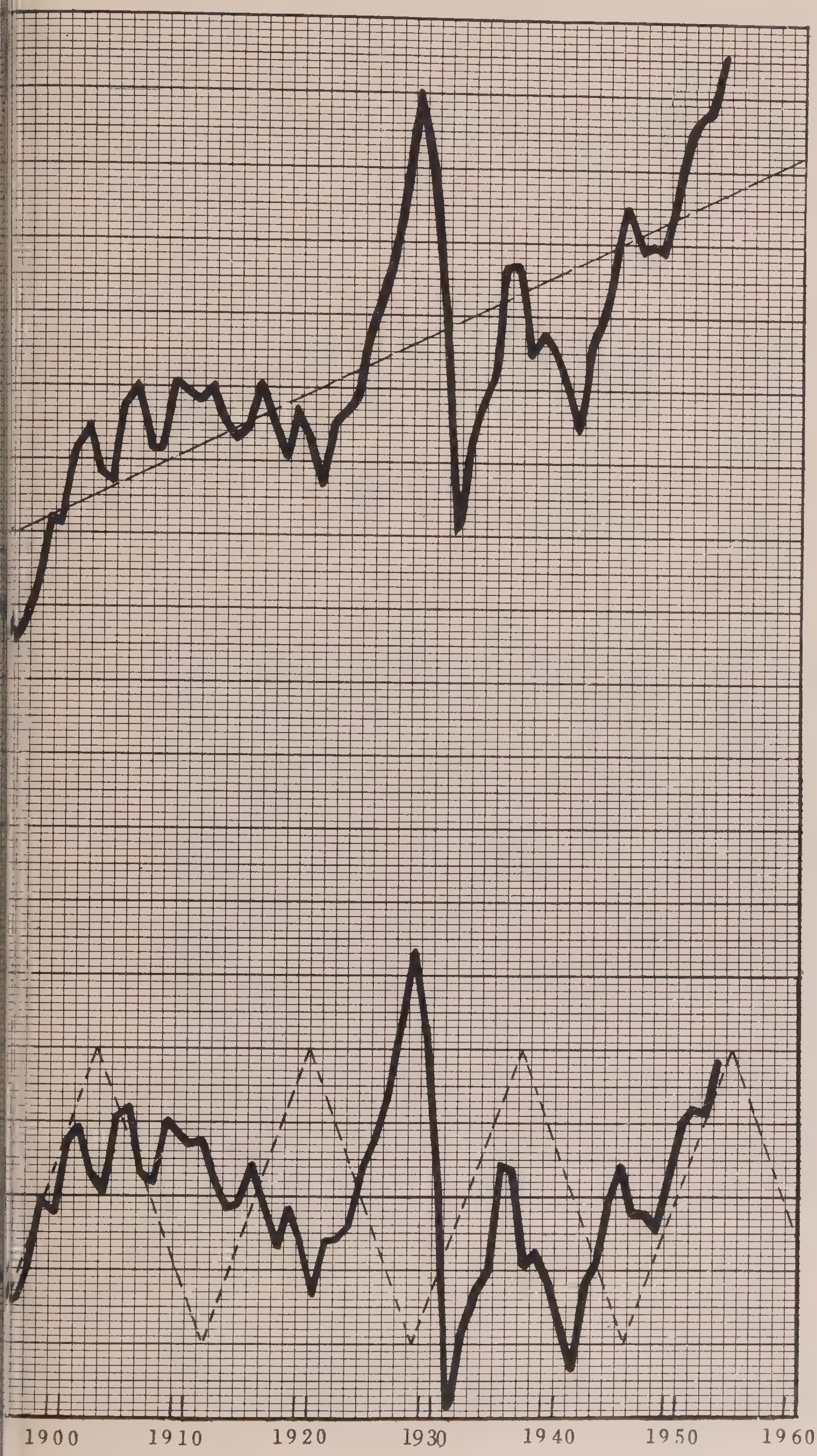
E.R.D.



Upper curve: An index of stock market prices 1831—1954, together with a straight line trend. Ratio Scale

Lower curve: Percentages by which the index was above or below trend. Ratio Scale.

A 17.2-year zigzag has been added to diagram the timing of the 17.2-year cycle in this series of figures. Ratio Scale.


1900
1910
1920
1930
1940
1950
1960

THE 18.2-YEAR CYCLE
IN
THE MARRIAGE RATE, 1867–1950

BECAUSE there is a 17.2-year cycle in population I thought there might be a 17.2-year cycle in marriages--the one often having something to do with the other. However, none can be found.

What does turn up is our old friend, the 18.2-year cycle to which I gave so much attention last month.

Estimates of marriages per 1,000 of population are available from 1867 through 1953. They vary from year to year and show a generally upward trend. Fig. 1 below shows a chart of the percentages (smoothed) by which the actual figures are above or below trend. An 18.2-year cycle has been added by a broken zigzag to aid your eye.

The ideal 18.2-year cycle crests, as nearly as I can determine it, at 1960.7. This is quite in line with the other 18.2-year cycles.

E.R.D.

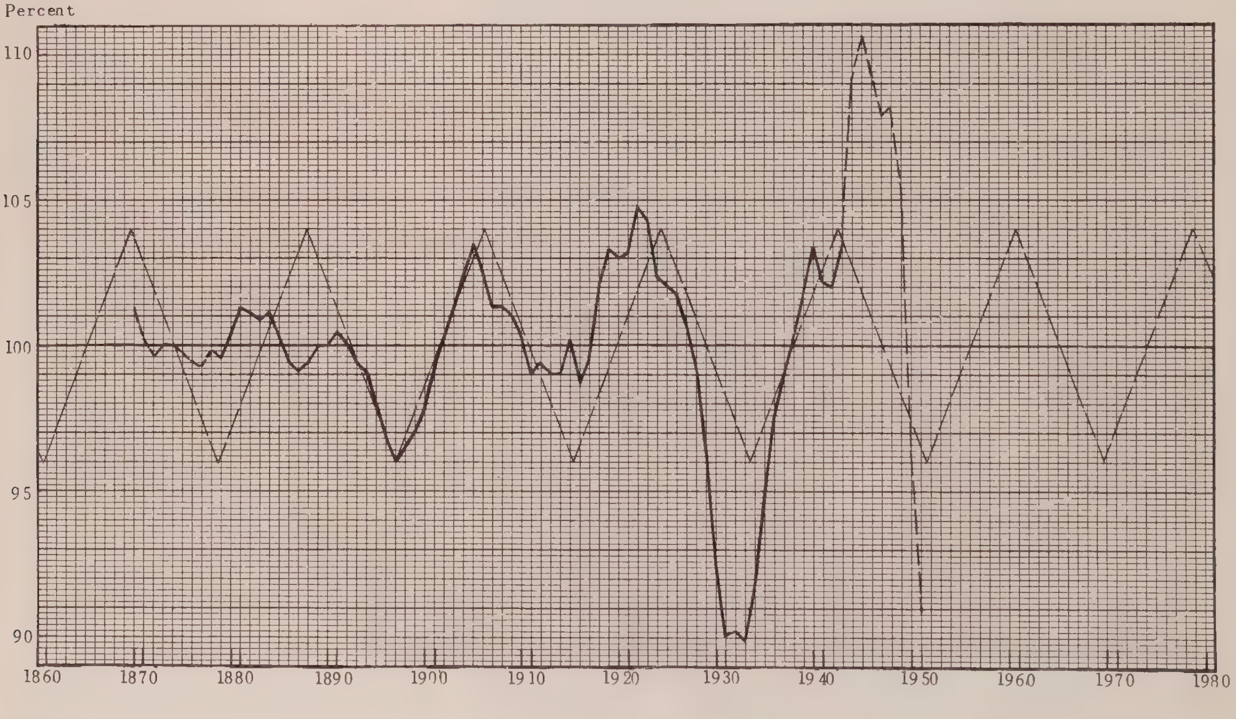


Fig. 1. The 18.2-Year Cycle in the Marriage Rate.

The curve shows the percentages (smoothed by a 6-year moving average) by which the marriage rate has been above or below trend. (The trend used is a 17-year moving average, with estimates for first eight and last eight values.)

The zigzag line diagrams the ideal 18.2-year cycle in these figures.

THE 17.2-YEAR CYCLE

IN

U. S. A. POPULATION, 1790–1954

YOU may think that the population of the United States grows evenly, but it does not. First it grows more rapidly, then less rapidly, then more rapidly again. This growth occurs in spurts or cycles about 17.2-years long.

We have just been experiencing one of the rapid periods of our growth.

Fig. 1 shows estimates of population, year by year from 1790 through 1954 together with the underlying growth trend. (Trend is shown by a dotted line.) Fig. 2 shows, with exaggerated vertical scale, the departures from trend. Fig. 2 also shows a zigzag to diagram the 17.2-year cycle.

(For the technician: The trend used was a 17-year moving average of the logs of the data, first and last eight values extrapolated graphically.)

The 17.2-year cycle is not too regular, but it is clearly present. In the early years the 17.2-year cycle was distorted by a 10-year cycle which seems to have been quite important. The recent past has been distorted too. An upsurge of population was due to begin in 1939, just when the war started in Europe. Actually, relative to trend, population kept declining until 1946. The crest of the upward move, due in 1947.3 was similarly delayed. It seems to have come in 1953.

If this cycle in these figures is significant, as I believe it is, we may expect variations of population to get back on the track again during the course of the next cycle.

It is interesting to note that the 17.2-year cycle in population is almost exactly upside down in comparison with the 17.2-year cycle in stock prices. For example, the current crest of the 17.2-year cycle in the stock market is due, ideally, 1955.4. The ideal time for the current *trough* of the 17.2-year cycle in population is 1955.9.

Percentagewise the 17.2-year cycle in population is not important. On the average, for the entire 165 year period, the crests are about a quarter of one percent (.289%) above trend at time of crest and about the same (.287%) below trend at time of trough. However at the present levels of population this amounts, in actual people, to about 460,000 souls. This is quite a respectable number, especially if you and I and the members of our respective families happen to be included—or not.

Our studies have not gone far enough to indicate whether the 17.2-year cycle in growth of population results from a 17.2-year cycle in the birth rate, a 17.2-year cycle in the death rate, or from other causes; but whatever it is, its mighty curious.

E.R.D.

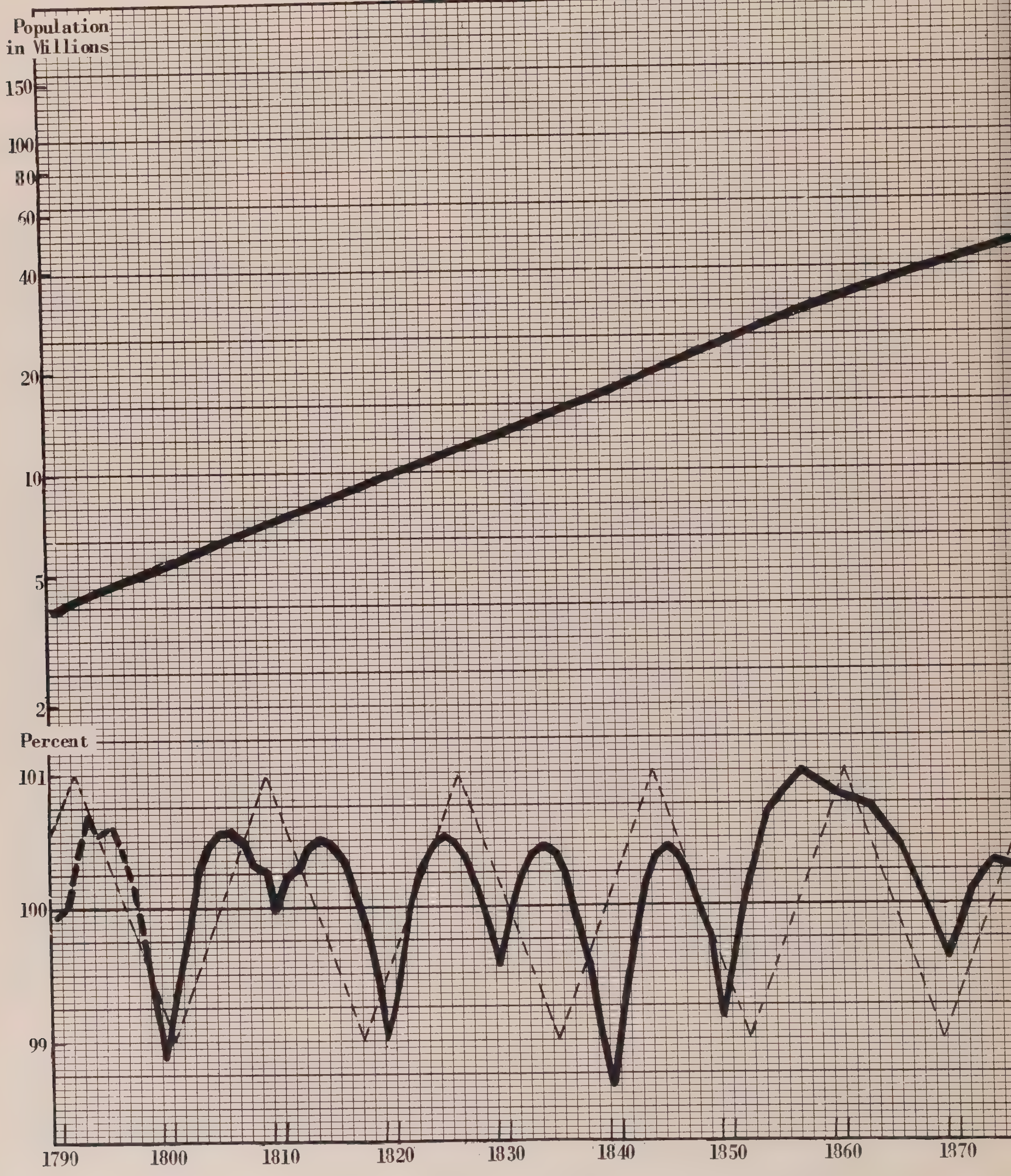
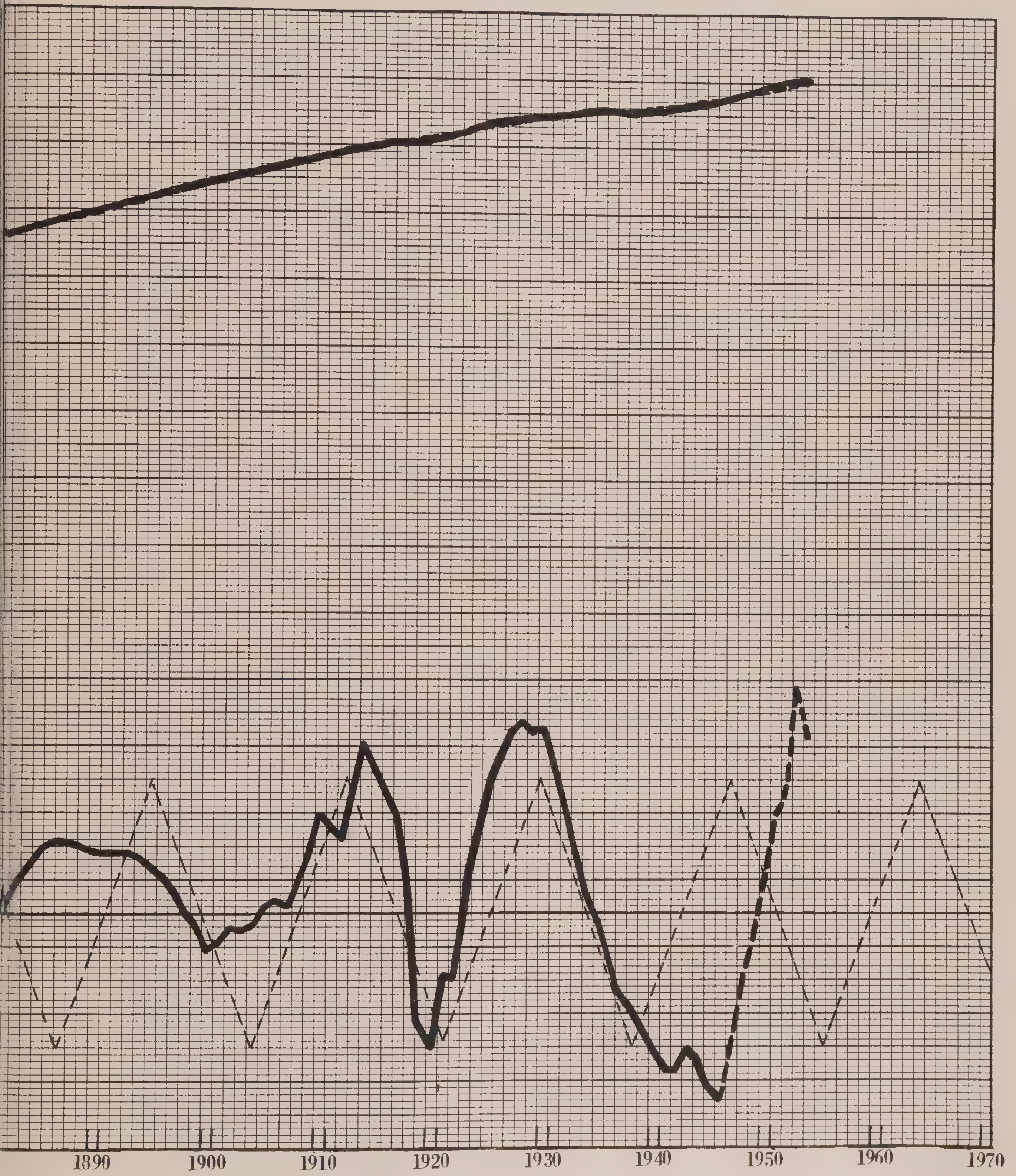


Fig. 1. Population of Continental United States, 1790--1954. (Census Bureau Estimates.)

Together with 17-year moving average trend (shown by a broken line)



Lower curve shows (exaggerated vertical scale) the amounts by which population was above or below trend. Zigzag has been added to diagram typical timing of the 17.2-year cycle. Ratio Scale.

How it Came Out

The 33-Month Cycle in Building Construction

IN 1939 Professors F. A. Pearson, W. I. Myers, and G. E. Brandow, all at that time of Cornell University, published a paper in *Farm Economics* in which they showed the existence of a 33-month cycle in residential building construction from 1919 to 1938.

Their work is shown in the upper curve of Fig. 1, on the next page. At that time all that was going to happen for the next 16 years was as yet unknown.

Ideal 33-month waves fitted to the 12-month moving percentage of the data crested in January 1920 and every 33 months thereafter. This puts crests ideally in October 1922, July 1925, April 1928, January 1931, October 1933, and July 1936. The moving percentage conformed quite well to the ideal pattern, as you can see.

Pearson and his associates projected crests of the ideal wave into the future. This projection called for crests in April 1938, January 1942, October 1944, July 1947, April 1950, and so on.

How has this forecast worked out?

You can see how their projection has worked out by looking at the lower curve of Fig. 1.

War Distortion

The 1938 crest came through a trifle early, but clear and strong. The wave due to crest in 1942 started to unfold rather nicely but succumbed to the war. The next cycle was completely topsy-turvy, with a low in 1944 where there "should" have been a high, and a high in 1946 just when there "should" have been a low.

The Cycle Reappears

Then, the war having ended, the cycle began to reappear. The crest due in 1947 was almost a year late. The low due at the end of 1948 was three months late. The crest due in April 1959 came on time—*to the very month*—as projected by Professor Pearson and his associates in 1939, 11 years before.

The low due ideally at the end of August 1951 was 4½ months late. The crest due January 1953 was one month early. The low due at the end of May 1954 came in May of 1953. The next crest is due in October 1955. Whether it will come early or late, or exactly on time, no one of course yet knows.

It is noteworthy that after the war distortion the cycle reasserted itself just as if there had been no war. It is hard to believe that this could have happened as a result of accident.

Overleaf, Fig. 2 shows on enlarged scale the actual month by month behavior from 1949 to date.

Charts Show Relative Behavior

The curves plotted in Figs. 1 and 2 represent building construction contracts *relative* to contracts the year before. When the curve is above 100 it means that construction contracts were more than a year ago. When the curve is below 100 it means they were less than a year ago.

This concept is familiar to every business man. "My business is 10% better than it was a year ago." One advantage of comparisons of this sort is that they eliminate the influence of seasonal variation. A seasonal pattern is quite important in residential building construction contracts.

Another advantage of the 12-month percentage comparison is that it minimizes trend and long term fluctuations.

Of course, a knowledge of this one cycle is not enough to enable you to make an adequate forecast of probable future residential building construction contract awards. However, the record shown by the accompanying charts certainly tends to support the idea that the people who award residential building construction contracts are influenced by a 33 month force. We must find out what this force is before we can say we understand either building construction or economics. *E.R.D.*

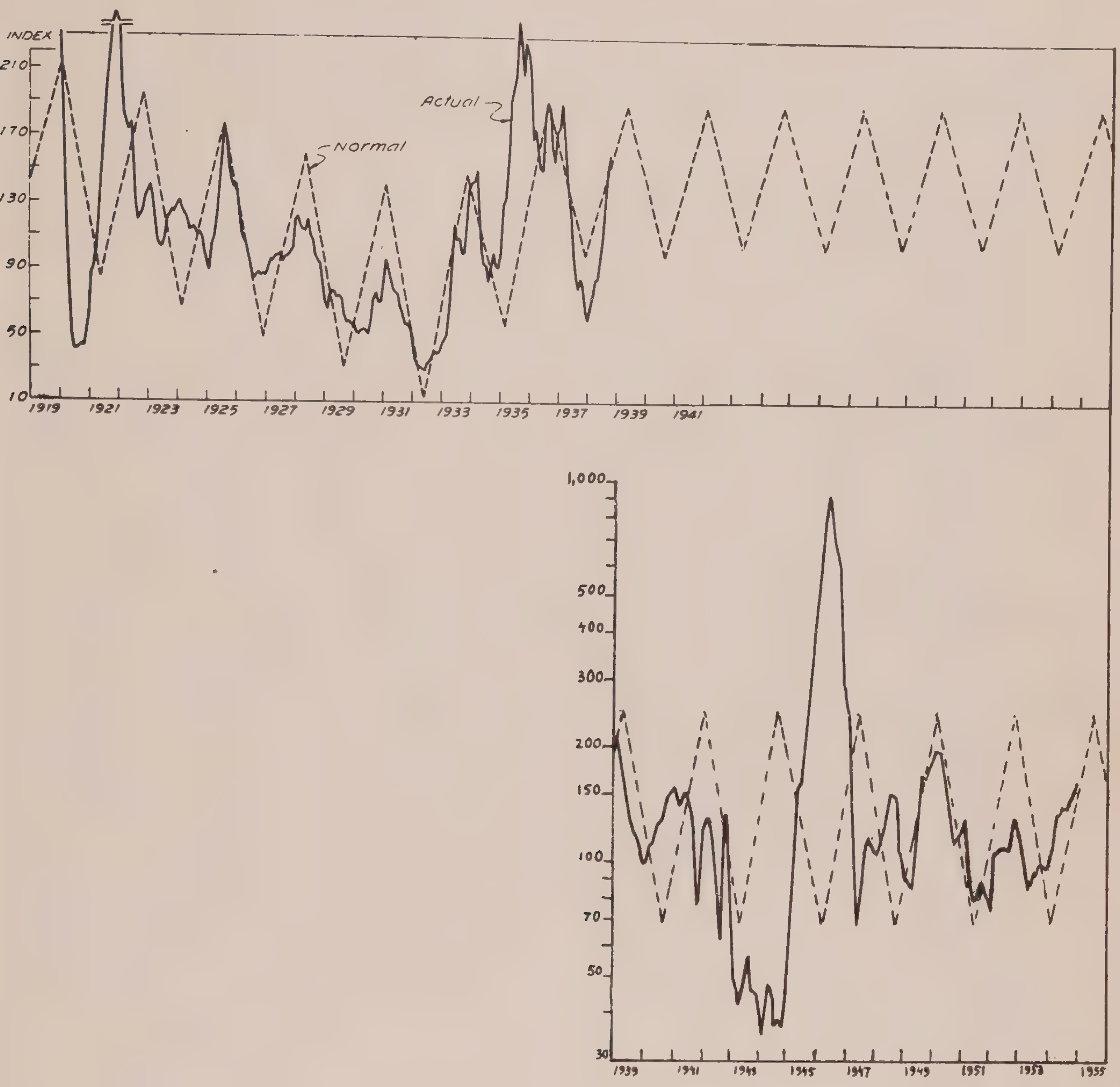
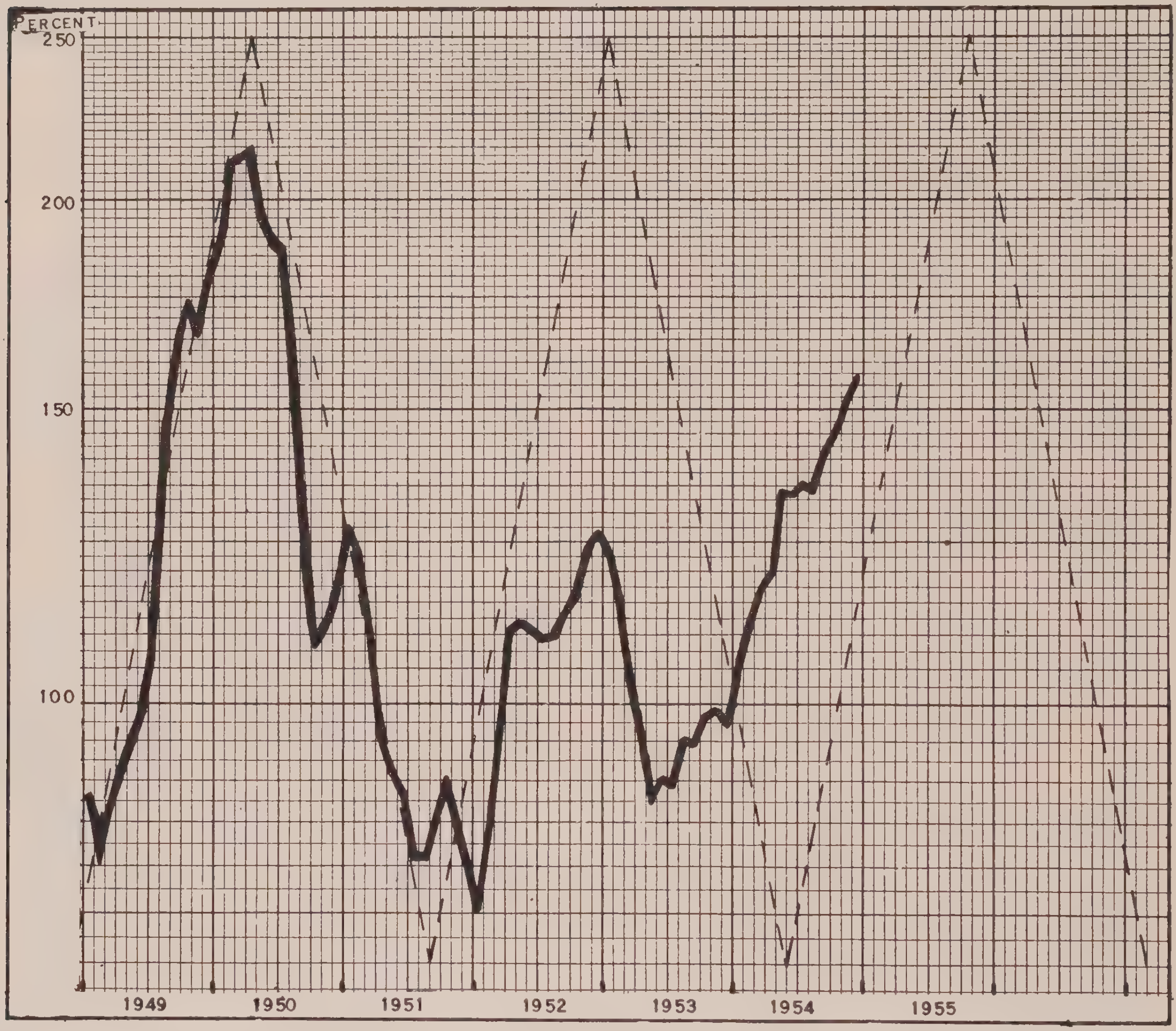


Fig. 1 UPPER CURVE: A reproduction of a chart which appeared in the February 1939 issue of Farm Economics to illustrate an article by Professors Pearson, Myers, and Brandow. It shows the 33-month cycle in residential building activity as reflected by a 3-month moving average in the 12-month moving percentage of raw data, 1919-1938. The broken zigzag shows the normal wave. The normal wave was projected into the future to show behavior tendencies if the cycle continued.

LOWER CURVE: Corresponding figures, 1939-1954, based on the F. W. Dodge Corporation's valuation of residential building construction contracts awarded in 37 states. For convenience these figures have been plotted on ratio scale instead of on arithmetic scale as in the upper chart. Note major distortion of actual figures as compared with the normal during the war period, and gradual return to normal after the war's close.



THE 33-MONTH CYCLE IN BUILDING CONSTRUCTION
as discovered by F. A. Pearson, W. I. Myers, and G. E. Brandow in 1939

Rate of change of residential building construction, January 1949—December 1954, together with a perfectly regular 33-month zigzag as projected in 1939 by Professors F. A. Pearson, W. I. Myers, and G. E. Brandow.

The curve represents a three-month moving average of the 12-month moving percentage of the F. W. Dodge Corporation's valuation of residential building construction contracts awarded in 37 states. Ratio Scale.

Foundation Affairs

THE CYCLE INTERESTS OF OUR MEMBERS

WE recently sent questionnaires to a selected number of our members in an effort to get a better idea of their interests.

As I told you in the Director's Letter for March, the majority of the members are primarily interested in stocks, bonds, commodities, and general business. However, the diversity of interest of those who are not interested in these subjects was a bit surprising.

A tabulation of the first batch of questionnaires received is shown below.

It is obviously impossible for me to spend very much time on any of these subjects of particular interest. I think the solution for persons of specialized interest is for them to take the correspondence course and to find for themselves the cycles in the series of figures of special interest to them. In fact, the same is probably true of people interested in stocks and commodities. You don't buy "commodities." You buy soy beans, corn, or wheat. You don't buy "the market." You buy Bethlehem Steel, Continental Can, or Southern Pacific.

E.R.D.

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SCIENTIFIC	6
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NO INTEREST INDICATED	5
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SOLAR	3
TRENDS	3
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ANIMAL CYCLES	2
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MOTION PICTURE	2
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SOCIAL	1
HISTORICAL	1
MILK AND DAIRY PRICES	1
GRAPHIC ARTS INDUSTRY	1
MUSIC	1
FLOUR MILLING	1
CYCLES AS SUCH	1
HORSE RACING	1
SALES OF BEDDING	1
SEX	1
HUMAN APTITUDES AND CAPABILITIES	1
DURABLE GOODS	1
CREDIT UNION	1
TELEPHONE GROWTH	1
STREAM FLOW	1
FISH BIOLOGY	1
REGIONAL BUS CONDITIONS	1
HEATING AND AIR CONDITIONING	1
INSURANCE	1
PRICE LEVELS	1
CONSTRUCTION AND GROWTH PATTERNS	1
THEORY AND PRACTICE OF BUSINESS AND INVENTORY FORECASTING	1
VANILLA	1
METAL PRICES	1
MACHINE TOOL OUTPUT	1
NATIONS	1
EFFECT OF ADVERTISING	1
HOW WE GOT THIS WAY AND WHERE WE MAY BE GOING	1
LUNAR EFFECT ON PEOPLE--TIDES--GROWTH	1
PLANETARY INFLUENCE	1
PUBLIC UTILITIES	1
HURRICANE CYCLES	1
COTTON	1
BUSINESS MACHINE SALES	1
GARMENT AND TEXTILES	1
ELECTRO MAGNETIC SPECTRUM	1
INFLATION	1
LAW	1
PATENTS	1
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TALLOW	1
DOESN'T KNOW YET	1
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	735

THE MODIFIED GEISINGER INDICATOR

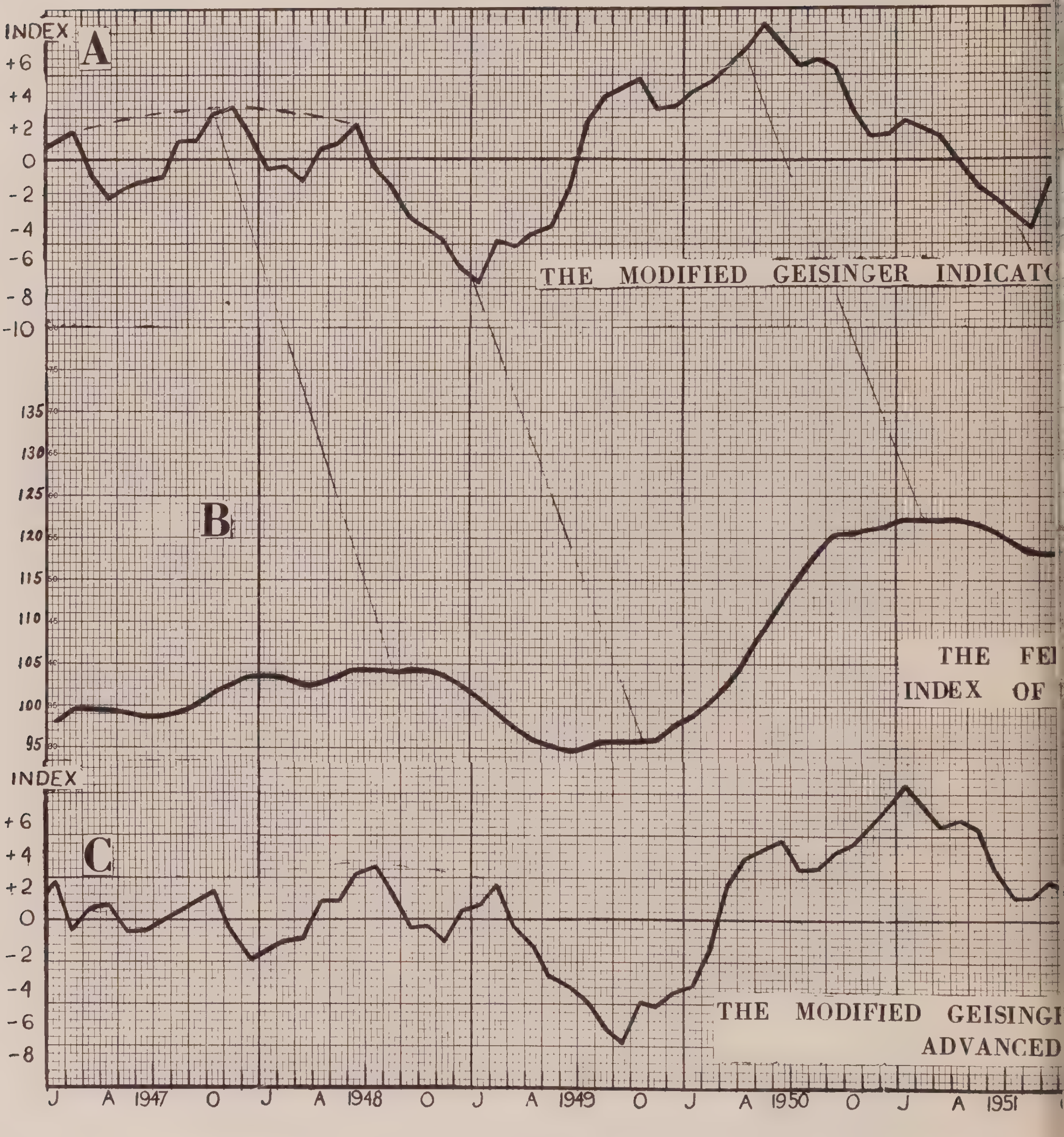
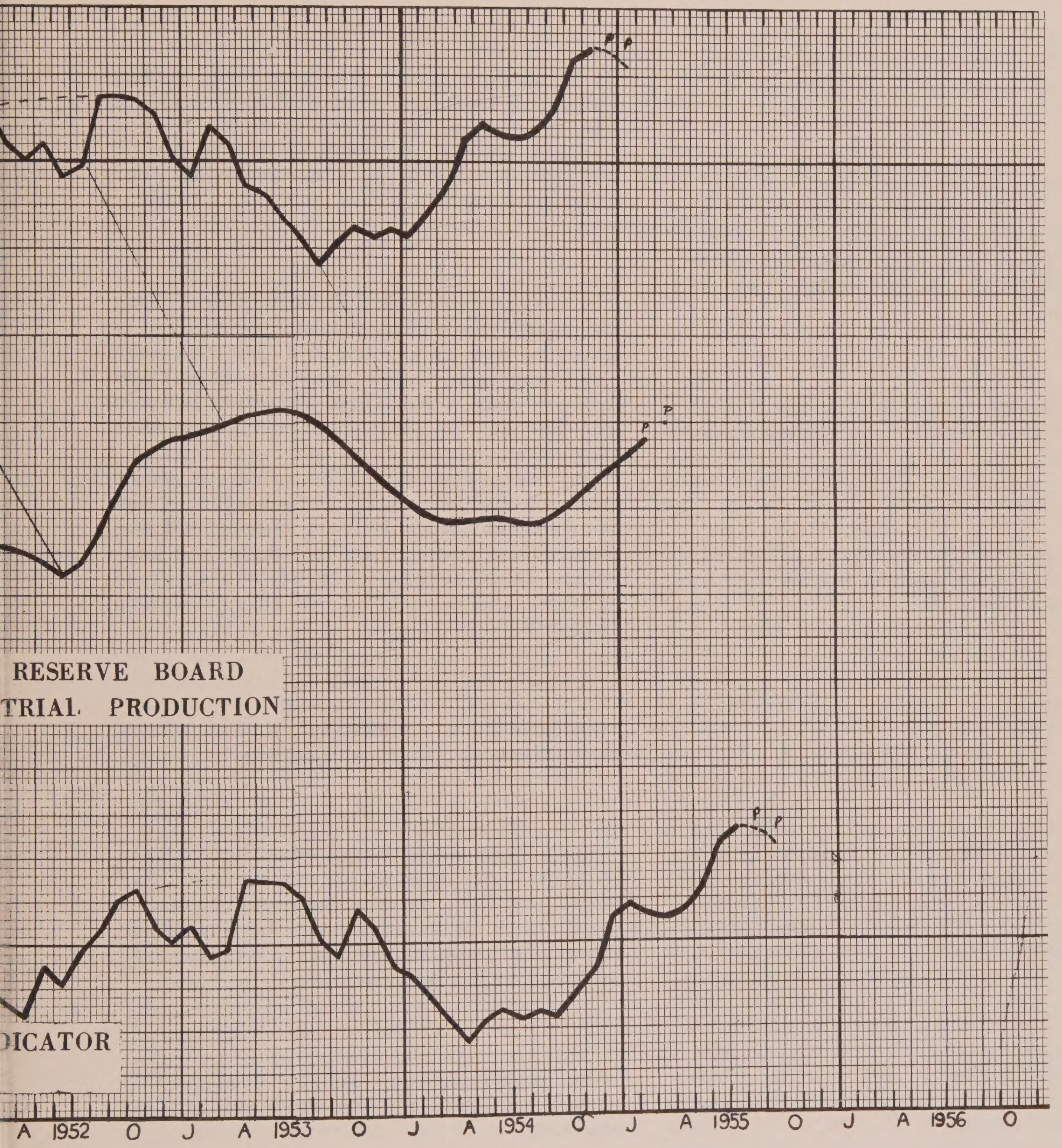


Fig. 1. Curve A. The Modified Geisinger Industrial Production Indicator Curve. This curve is derived from certain figures which are published monthly in the *Survey of Current Business*. It tends to turn about 8 months before the Federal Reserve Board Index of Industrial Production.

Curve B. The Federal Reserve Board Index of Industrial Production adjusted for seasonal variation and smoothed by a 3-month moving average. The value for the latest available month is shown by a dot.

Curve C. This Curve is the Modified Geisinger Industrial Production Indicator Curve advanced by 8 months. This process projects part of the curve into the future. If the relationships of the past continue, the projection gives some hint of what may happen to the Federal Reserve Board Index of Industrial Production (Curve B).

OF INDUSTRIAL PRODUCTION



THE FORECAST

The value of The Modified Geisinger Indicator for November 1954 was plus 6.6. However, provisional values for December and January are plus 6.4 and plus 5.6 respectively. If final figures confirm these preliminary figures, a crest occurred in November 1954.

This is the first hint that the present boom in industrial production may contain within itself the seeds of decay, and that these seeds may be sprouting a little.

The indicator suggests caution for the 4th quarter of 1955.

E.R.D.

STUDENTS SAY--

"Am enjoying the course more and more with each lesson, and am certain that the study and practice are going to be worthwhile."

* * *

"It is extremely interesting and well-assembled; it is well-serviced; ... it is ... meticulously illustrated. ... I would hazard the guess that this subject is more difficult to teach, by and large, than it is to learn."

* * *

"... am more than pleased with the clear-cut manner as written. ... stimulating, ... excellent."

* * *

"... am happy that the gist of cycle analysis has been presented so succinctly and in logical order."

* * *

"... the course is indeed ... interesting and intriguing."

* * *

"To me it has been refreshing and very instructive to have the subject matter presented in such clear cut fashion. The omission of irrelevant matter is a treat, i.e. things are boiled down and still understandable. The necessary elaboration of new material and ideas within practical limits is unusually clear. Also, the practice obtained in working problems seems to be well directed toward an ultimate goal which should permit one to do cycle analysis in a logical manner and without waste motion."

* * *

"Have found the course very instructive and revealing i.e. through Lesson XI so far, and am looking forward to the balance of the material. Still am hopeful in becoming proficient after more practice and instruction in cycle analysis."

* * *

"I think your course has been very interesting. I think you will probably separate the sheep from the goats with the method of putting the students in the midst of things without going slow over the preliminary stuff."

* * *

"In the introduction, or some place along the line, you mentioned that you were only going to act as a guide and that you were not going to be a ski-tow. In Lesson V you are not only a guide and ski-tow, but you are one of the most recent, up-to-date ski-lifts.

"As a result of the fine write-up which you made for Lesson V I believe that a ten year old child could have understood the material and been able to handle the problems. It is obvious that you put a lot of thought and concentration in writing up Lesson V."

* * *

"You have done a wonderful job in making the subject as clear as possible."

* * *

"I feel that even though some duplication of previous learning was encountered (in Lessons I-IV), it was unavoidable and a good thing as a refresher. Lesson VI on the other hand was certainly stimulating and thoroughly enjoyable."

* * *

"The problems are clearly designed to search out gaps in the student's understanding."

* * *

"As one who finds most statistics textbooks largely incomprehensible ... I like your method of presentation of this fascinating subject. Am pleased with the attention given to my questions."

OUTLINE OF THE CORRESPONDENCE COURSE

Cycle analysis is a very specialized branch of statistics. The correspondence course, Cycle Analysis, is a course at college level. However, I see no reason why any intelligent high school graduate with a good knowledge of arithmetic and some competence in the use of figures cannot pass it successfully.

No mathematics except arithmetic are required as a pre-requisite.

The course is a practical one designed to teach you the elements of how (a) to find cycles, (b) to determine their lengths, strengths, shapes, and timings, (c) to isolate them, (d) to evaluate them, (e) to combine them, and (f) to project them into the future.

Problems will be provided to be worked by the student. Papers will be corrected and returned with comments.

An outline of the course follows:

Lesson I - Charts and how to use them in cycle analysis—arithmetic charts; ratio charts; interpolation.

Lesson II - Use of numbers—short cuts; some checking tricks. Averages—arithmetic means; geometric means; medians; modes. Which average to use. Index numbers--how to make them and how to use them in cycle analysis. Tabulation. Logarithms. Graphic logarithms.

Lesson III - How to make and use moving average trends for cycle analysis. Geometric moving averages; moving medians.

Lesson IV - How to remove trend for cycle analysis.

Lesson V - Cycle Analysis. How to make a cycle analysis of a series of numbers--a detailed outline. The forces creating time series. Synthesis. The proper way to combine cycles. How to combine growth, periodic and random components. Analysis. How to separate growth, periodic, and random components. Reversing cycles.

Lesson VI - How to get hints of cycles. Inspection. Counting intervals. Thumbing. The graduated scale. The time chart.

Lesson VII - How to make and use the periodic table to reveal the typical or average shape, strength, and timing of the cycle. How to rotate the periodic table to compensate for trend. Use of color in the periodic table.

Lesson VIII - How to use a periodic table to determine the length of the cycle.

Lesson IX - How to position the cycle.

Lesson X - Randoms: Three ways to minimize them.

Lesson XI - The effects of moving averages upon trend, upon cycles, and upon random numbers.

Lesson XII - Deviations of numbers from moving averages of various lengths. How to correct for distortion.

Lesson XIII - Three ways to definitize the cycle. Definitizing cycles of integral length and of fractional length. Determining the calendar timing of a cycle.

Lesson XIV - How to make a periodogram.

Lesson XV - Sine and cosine curves and how to fit them.

Lesson XVI - How to make a simple harmonic analysis. How to make a multiple harmonic analysis. Use and limitations of harmonic analysis.

Lesson XVII - How to compute moving percentages, moving ratios, and moving differences. Their effect upon cycles. How to use them to detect hidden cycles.

Lesson XVIII - The straight line trend. When to use it for cycle analysis. A short cut method for computing it.

Lesson XIX - How to use periodic tables to separate one cycle from another.

Lesson XX - Weighted moving averages. How to use them to reveal hidden cycles.

Lesson XXI - How to make a Streiff Analysis.

Lesson XXII - How to determine trend. How to project trend and cycles into the future.

Lesson XXIII - Tests for the significance of cycles.

The course is designed to occupy the average student about 6 hours a week. It should take you about a half year, but you may go as fast or as slow as you wish. For information about price, etc. see outside back cover.

Mr. H. A. Musham
741 No. Rush St.
Chicago, Ill.

CORRESPONDENCE COURSE TO BE GIVEN AGAIN

The correspondence course was so popular and was such a success that we are giving it again, improved and better than ever.

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The new course will consist of 23 lessons. These lessons are listed on the inside back cover.

The course is designed to pass on to you as much as possible of the know-how that I have acquired in 18 years work in this field. It is the only way I know of whereby you can learn the modern techniques of cycle analysis.

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In addition, you will analyze, under supervision, a series of figures of your own choosing.

I give each student my personal attention.

If you want to be able to find the cycles in the sales of your own business, in the stocks or commodities in which you are interested, or in any other series of figures, you will want to take this course.

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For detailed outline of the course, turn over leaf.

Send for a sample lesson on approval.